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FEDERAL - STATE - PRIVATE  
COOPERATIVE  
**SNOW SURVEY and WATER SUPPLY FORECASTS  
for  
OREGON**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE  
and  
OREGON AGRICULTURAL EXPERIMENT STATION  
and  
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above  
in cooperation with other Federal, State and private organizations.

AS OF  
**MAY 1, 1960**

# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## TO RECIPIENTS OF COOPERATIVE SNOW SURVEY AND WATER SUPPLY FORECAST REPORTS:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

## PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
<b>RIVER BASINS</b>			
COLDRAADD AND STATE OF UTAH	MONTHLY (JAN.-MAY)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA AND STATES OF IDAHO AND ALASKA	MONTHLY (JAN.-MAY)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSDURI AND STATE OF MONTANA	MONTHLY (FEB.-MAY)	BOZEMAN, MONTANA	MDNT. AGR. EXP. STATION
WEST-WIDE	OCT. 1. APR. 1. MAY 1	PORTLAND, OREGON	ALL COOPERATORS
<b>STATES</b>			
ARIZONA	SEMI-MONTHLY (JAN. 15 - APR. 1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOCIAITION ARIZ. AGR. EXP. STATION
COLDRAADD AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. AGR. EXP. STATION COLD. STATE ENGINEER N. MEX. STATE ENGINEER
NEVADA	MONTHLY (FEB.-APR.)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-MAY)	PORTLAND, OREGON	ORE. AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-MAY)	SPOKANE, WASHINGTON	WASH. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.- JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER
Copies of these various reports may be secured from: Head, Water Supply Forecasting Section Soil Conservation Service 209 S. W. Fifth Ave., Portland 4, Oregon			

## PUBLISHED BY OTHER AGENCIES

<u>REPORT</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.- JUNE)	COMPTROLLER, WATER RIGHTS BR., DEPT. OF LANDS AND FORESTS, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFDRNIA	MONTHLY (FEB.-MAY)	CALIFDRNIA DEPT. OF WATER RESOURCES, SACRAMENTO, CALIFDRNIA

FEDERAL - STATE - PRIVATE  
COOPERATIVE  
**SNOW SURVEY and WATER SUPPLY FORECASTS**  
**for**  
**OREGON**

ISSUED

**MAY 8, 1960**

*Report prepared by*  
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OREGON AGRICULTURAL  
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LEWIS A. STANLEY  
STATE ENGINEER  
STATE OF OREGON

*Issued by*

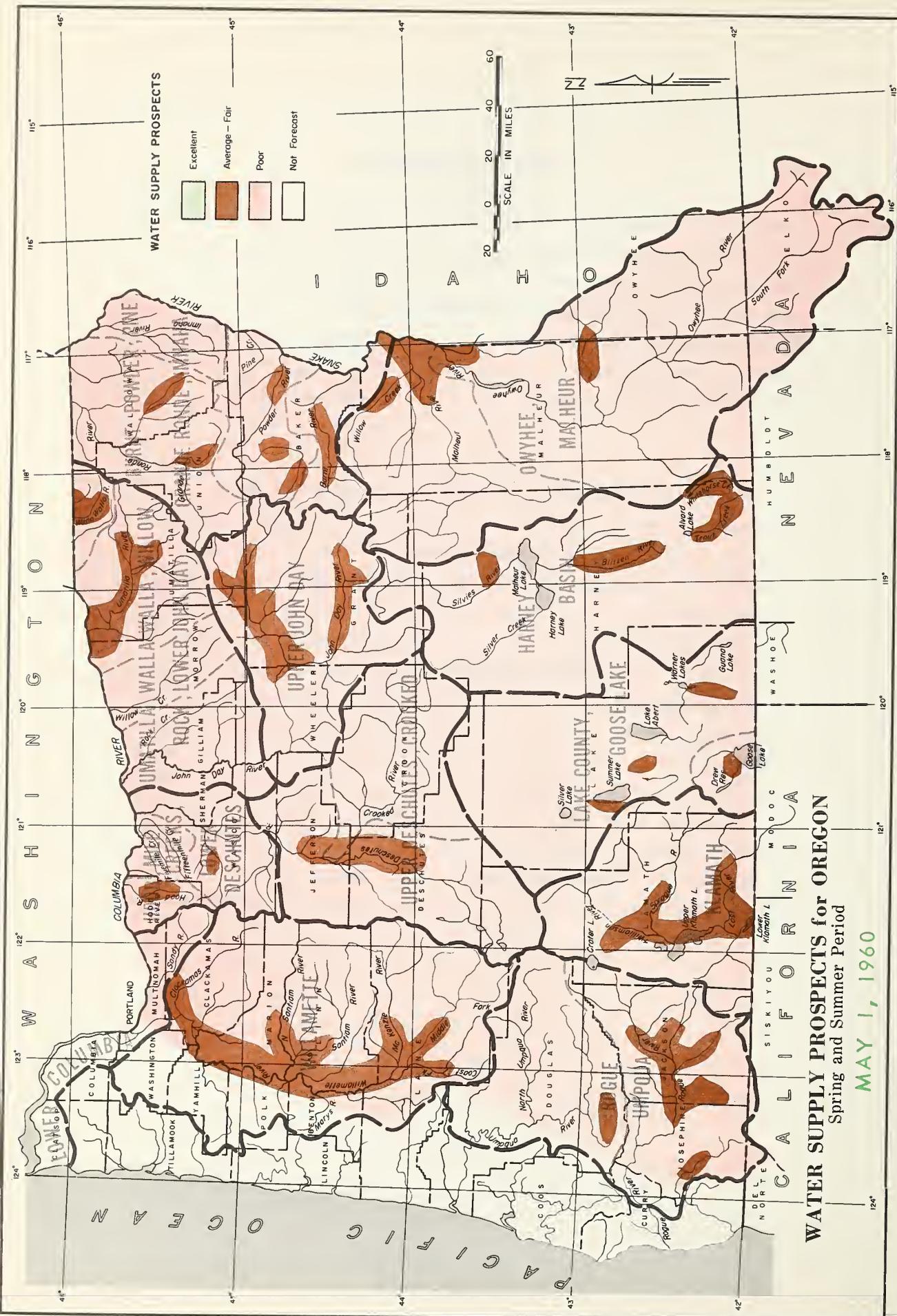


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# WATER SUPPLY OUTLOOK for OREGON

MAY 1, 1960

Oregon's water supply outlook for the April through September period changed slightly during April and is expected to vary from "near average" to "poor". Forecasts increased slightly in the Cascade and Wallowa Mountains when above normal precipitation occurred in April and decreased in the eastern and southern part of the state where precipitation was below normal.

## SNOW COVER:

Water content of the snowpack on May 1st was 57 percent of the 1943-57 average. Cool temperatures and April storms decreased melting and added to the snow cover at some of the higher elevations. On an average year the snow cover would decrease about 20 percent during April, this year it went down only 10 percent from April 1 to May 1.

## SOIL MOISTURE:

Watershed soils are well "primed" in most areas of the state. Some watersheds which have lost their snow cover and received below average precipitation last month, have already started to lose soil moisture.

## RESERVOIR STORAGE:

Reservoir storage in twenty-five of the larger reservoirs over the state is 95 percent of the 1943-57 average for May 1 and also 95 percent of last year at this date. Last year's dry season resulting in very little carry-over storage is causing the deficit in many reservoirs this year.

## STREAMFLOW:

Streamflow forecasts for the 1960 irrigation season, April through September, vary from a low of 45 percent for the inflow to Ochoco reservoir to 93 percent for the Clackamas at Estacada.

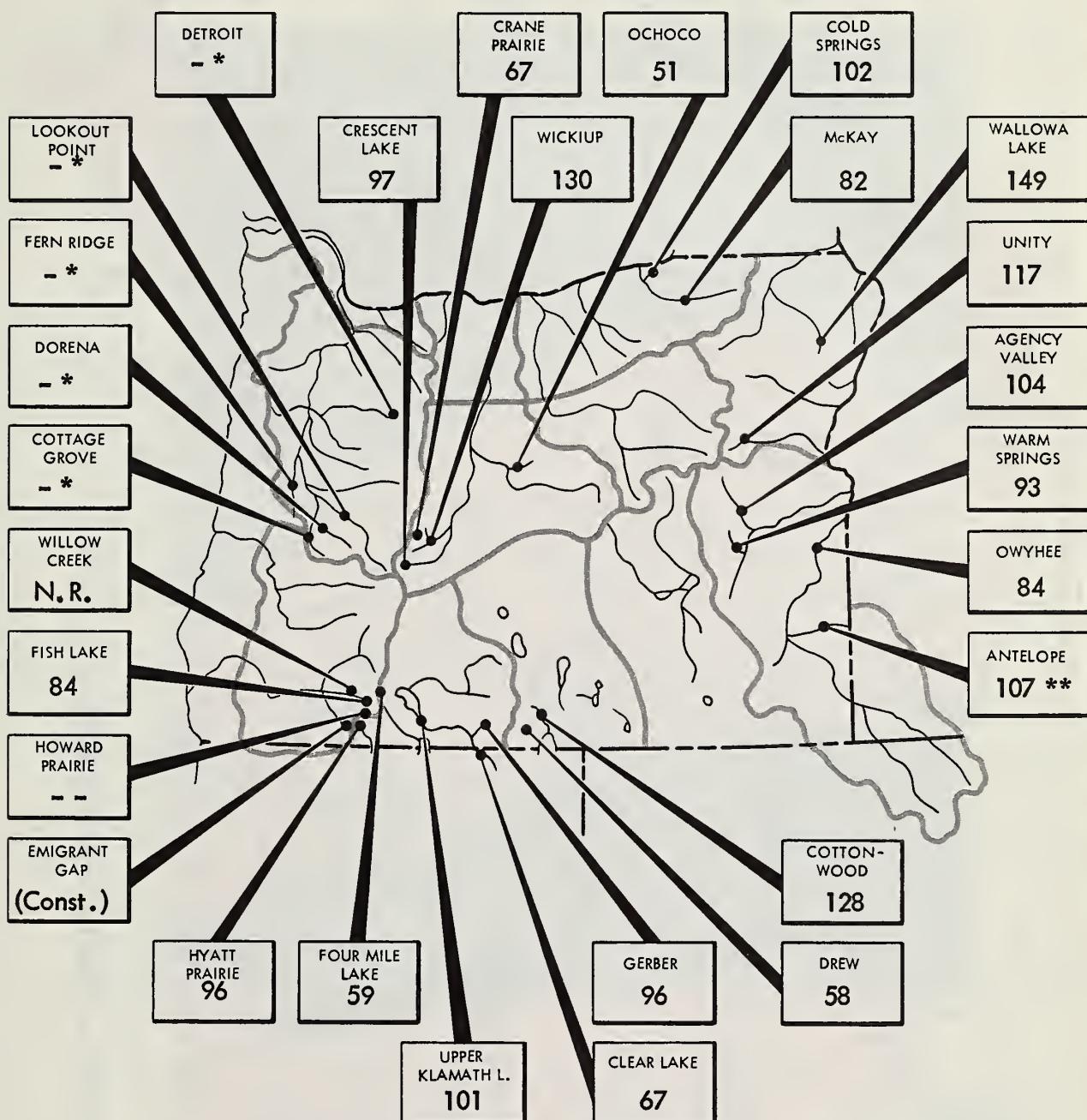
Forecasts have been raised on some streams and lowered on others. Some key Oregon streams are now expected to flow the following percentages of the 1943-57 average.

Owyhee	52	John Day	59
Malheur	70	Crooked	66
Powder	83	Deschutes	90
Grande Ronde	74	Hood	78
Wallowa	70	Umpqua	77
Umatilla	83	Rogue	85



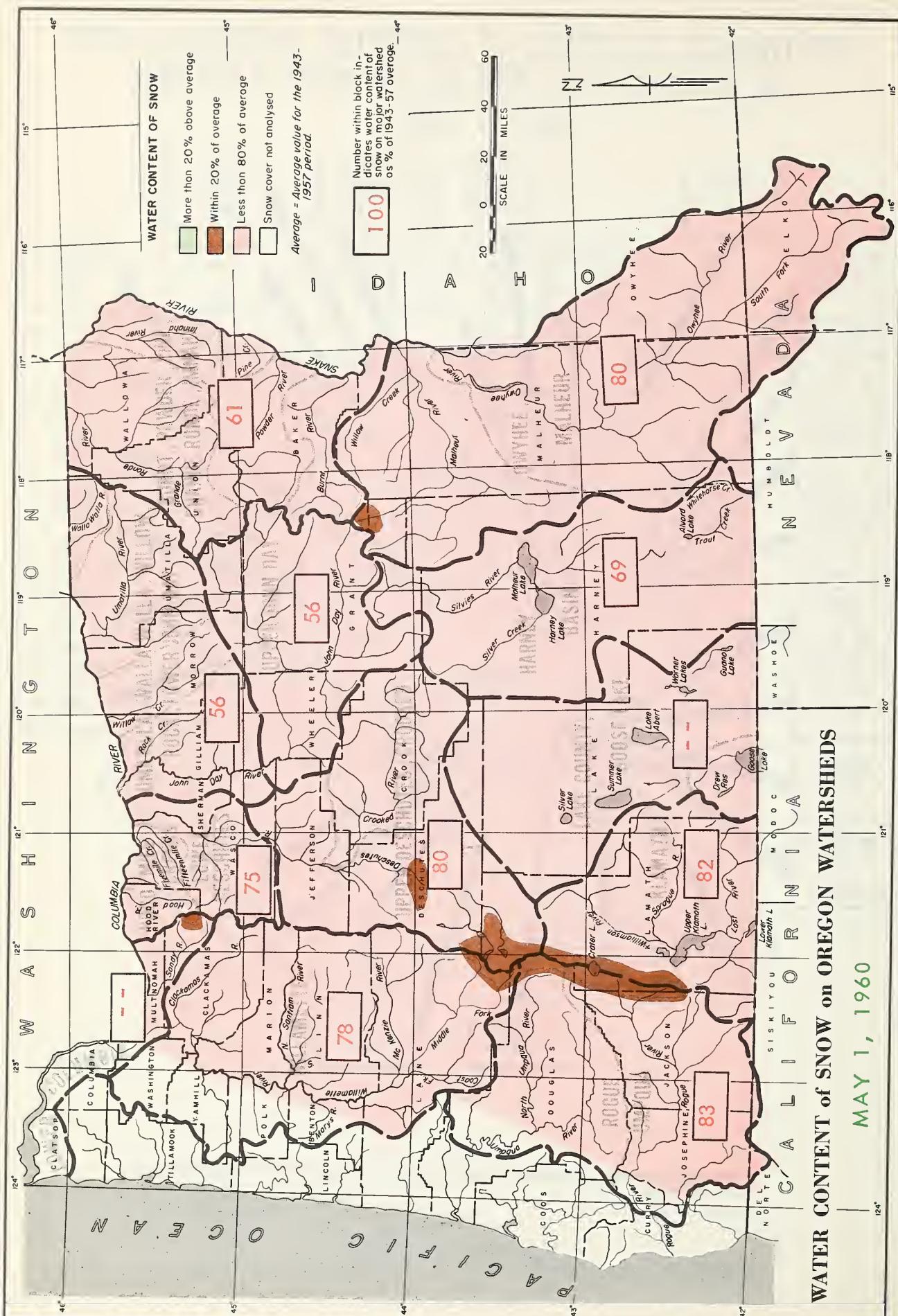
# STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

MAY 1, 1960



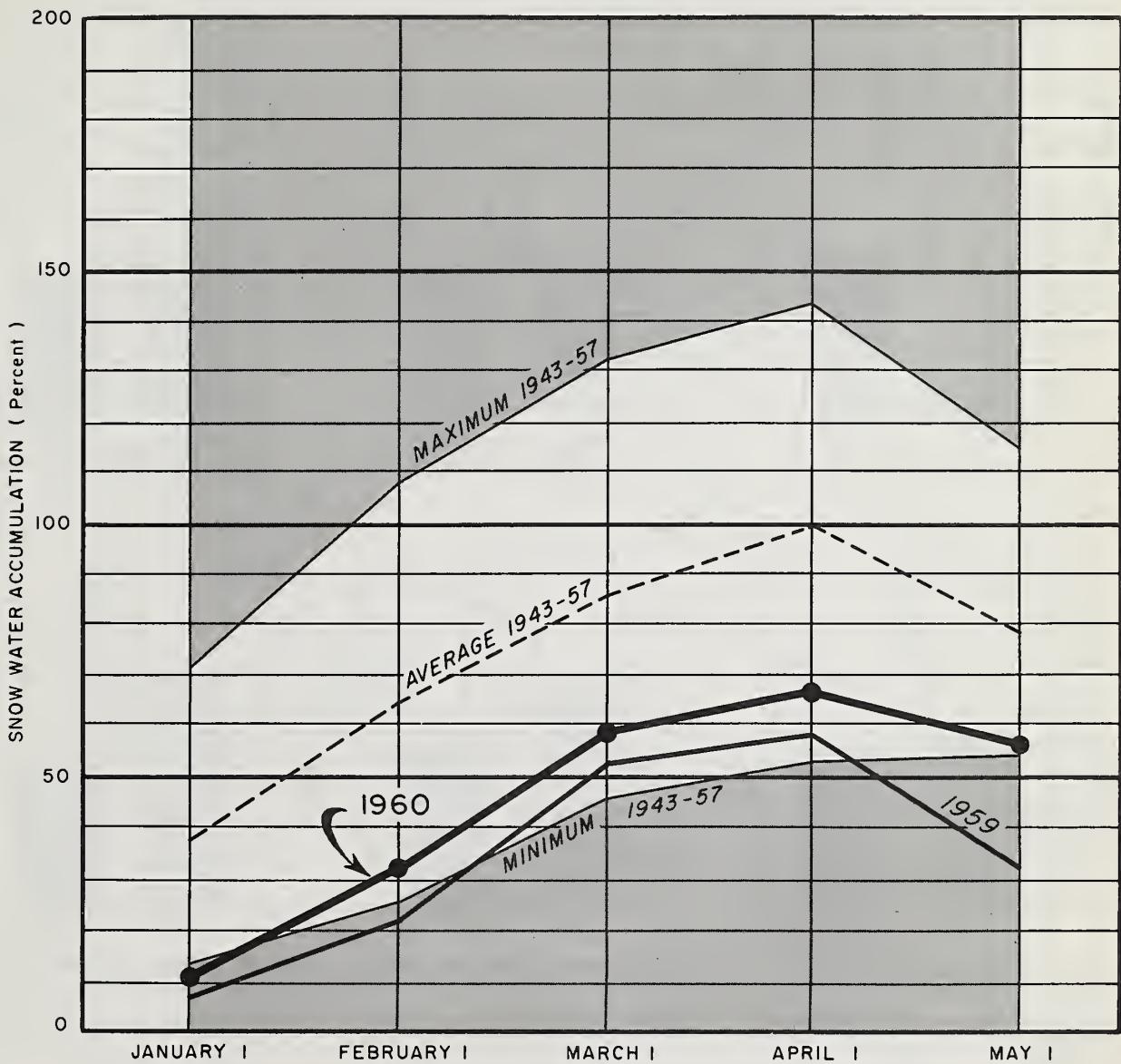
\* - Multiple purpose reservoir - space reserved primarily for flood runoff.  
N.R. - No report.

\*\* - April 12



# SNOW WATER ACCUMULATION in OREGON

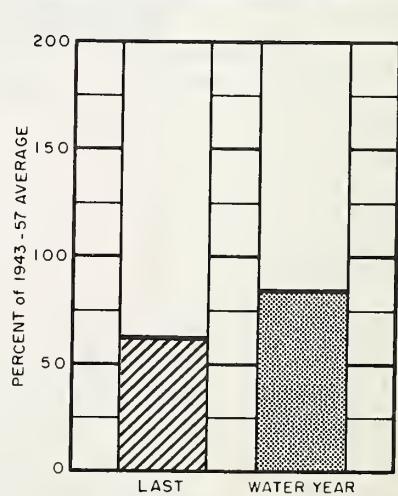
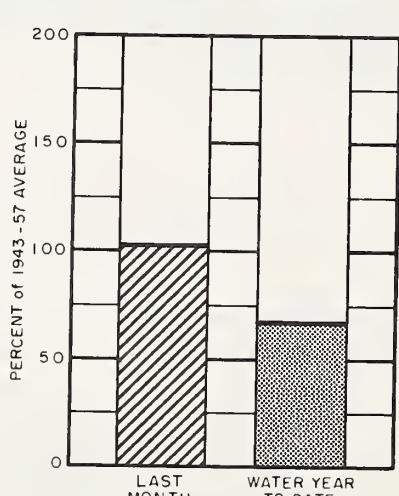
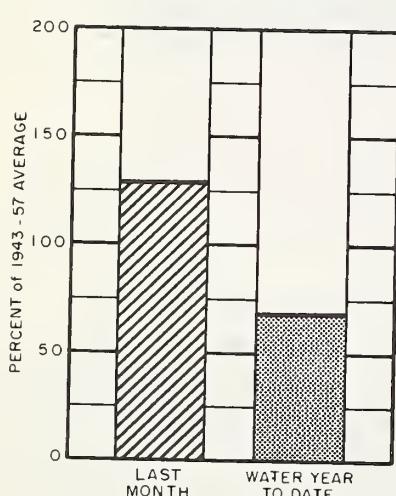
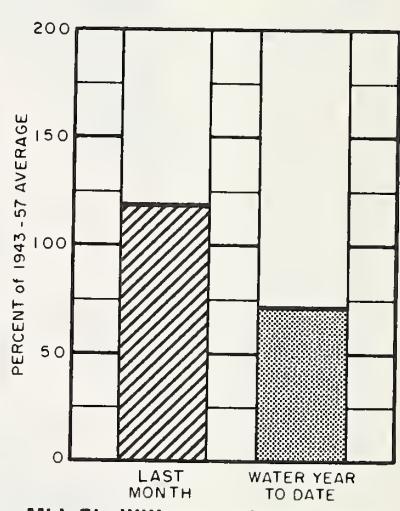
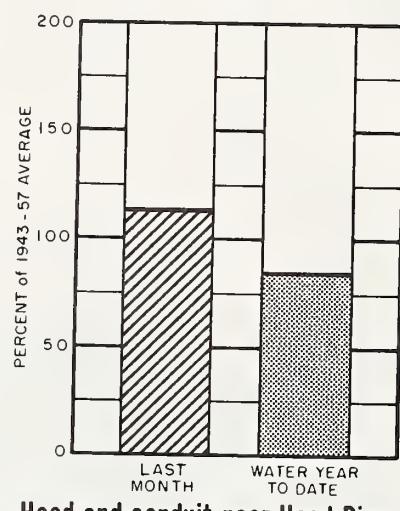
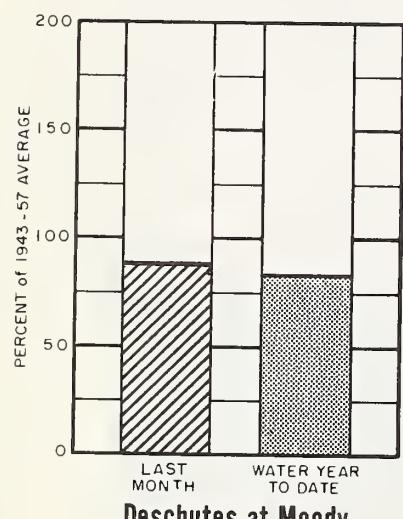
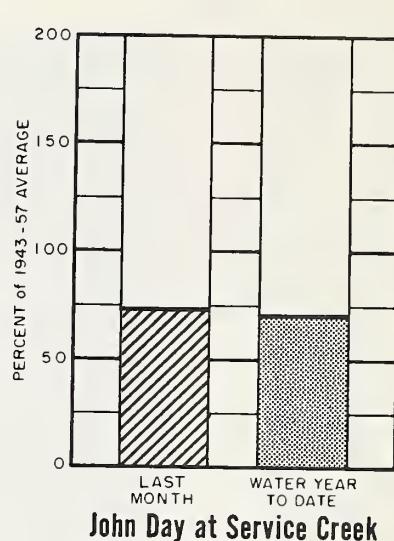
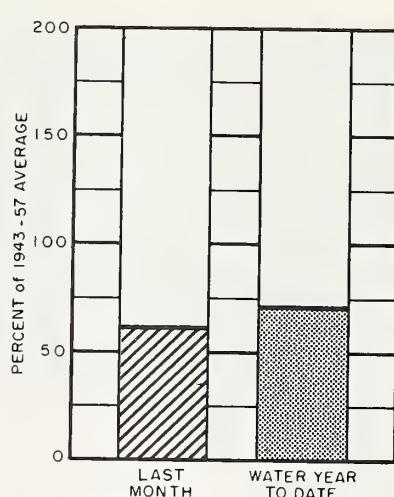
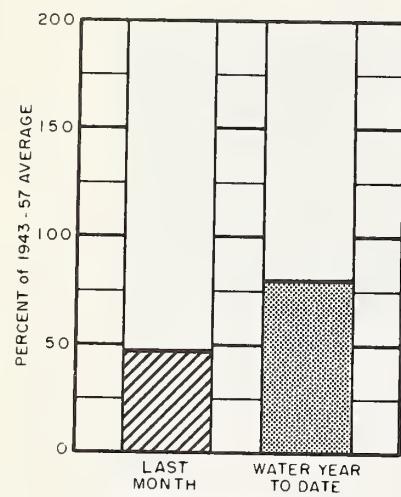
MAY 1, 1960



Cool, stormy weather during April has held the snow water accumulation up a little better than usual for May 1, although it is still well below the normal amount for this time of year. On an average year, the snow accumulation drops about 22 percent during April - this year it dropped only 10 percent and is now 56 percent of the 1943-57 average.

# CURRENT OREGON STREAMFLOW

MAY 1, 1960



# VALLEY PRECIPITATION in OREGON <sup>a</sup>

MAY 1, 1960



## PRECIPITATION as PERCENT of the 1943-57 AVERAGE

STATION	LAST MONTH	WATER YEAR TO DATE	STATION	LAST MONTH	WATER YEAR TO DATE
BAKER APT.	72	77	LAKEVIEW	117	86
BEND	205	73	MEDFORD APT.	73	78
BURNS	59	100	NYSSA	51	97
ENTERPRISE	148	94	PENDLETON APT.	76	71
EUGENE APT.	142	85	PORTLAND APT.	164	80
HEPPNER	Report	delayed	ROSEBURG APT.	126	83
JOHN DAY	118	60	SALEM APT.	161	76
Klamath Falls APT.	47	86	THE DALLES	133	74

(a) Preliminary data furnished by the U.S. Weather Bureau. (b) Oct. 1 to date. (c) Report delayed.



# WATER SUPPLY OUTLOOK

## OWYHEE, MALHEUR WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

The cool temperatures and below average rainfall during April have delayed and damaged agricultural operations in Malheur County and have also further reduced the below average water supplies that are expected during the balance of the irrigation season. Fortunately, stored water will be sufficient for most lands irrigated from the major reservoirs of the area. Flow of all streams, however, will be extremely short in late season.

#### SNOW COVER

April storms brought alternate freezing and thawing to the mountain snowpack, leaving extra snow only at the very highest elevations. Measurable snow was reported at only three snow courses on the Owyhee; South Mountain and Silver City on the east side and Jack Peak on the south in the Independent Mountains. Similarly, snow was reported only at Blue Mountain Springs course on the Malheur.

#### SOIL MOISTURE

The soil mantle in the mountain watersheds is well "primed" with water content varying from 80 to 95 percent of capacity at the major stations.

#### RESERVOIR STORAGE

Stored water supplies are now slightly better than last year but still below the average amounts usually available. Agency Valley and Warmsprings reservoirs together hold 187,000 acre feet, compared with 178,000 acre feet last year on May 1st. Owyhee reservoir holds 521,500 acre feet compared with 487,500 acre feet a year ago. Antelope reservoir held roughly twice as much water as last year about April 12th and a more recent report is not available.

#### STREAMFLOW

Forecasts of streamflow for the April-September period range from 52 percent of the 15 year average (1943-57) for net inflow to the Owyhee on up to 62 percent for the Malheur at Drewsey and 70 percent average for the North Fork of the Malheur at Beulah. Streamflow is expected to greatly exceed last year's extremely low flows and will equal or exceed the low flows experienced in 1954 and 1955.

Many smaller streams, including Bully Creek, Cottonwood Creek (south of Harper), Sucker, Cow, Boulder, McDermitt, Ten Mile and Oregon Canyon Creeks, will taper off in flow much earlier than usual and will have little or no flow in the late season.

Users of stored water should operate with maximum efficiency to permit the carry-over of some water into the next season, which could also be a "short, dry, water year".

Report prepared by:

W. T. FROST AND BOB L. WHALEY  
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209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek	Fair	Poor
Bully Creek	Fair	Poor
Cow Creek	Fair	Poor
Jordan Creek	Fair	Fair
Jordan Valley Irrig. Dist.	Average	Fair
McDermitt Creek	Fair	Poor
Oregon Canyon Creek	Fair	Poor
Owyhee Project	Average	Average
Sucker Creek	Fair	Poor
Ten Mile Creek	Fair	Poor
Vale, Oregon Irrig. Dist.	Average	Fair
Warm Springs Irrig. Dist.	Average	Fair
Willow Creek	Fair	Fair

# RESERVOIR STORAGE (1,000 Ac. Ft.)

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <sup>b</sup>
Agency Valley	60.0	56.0	41.7	54.0
Antelope	54.7	32.0*	15.7	29.8
Owyhee	715.0	521.5	487.5	617.5
Warm Springs	191.0	131.0	136.4	140.2

\*On April 12th.

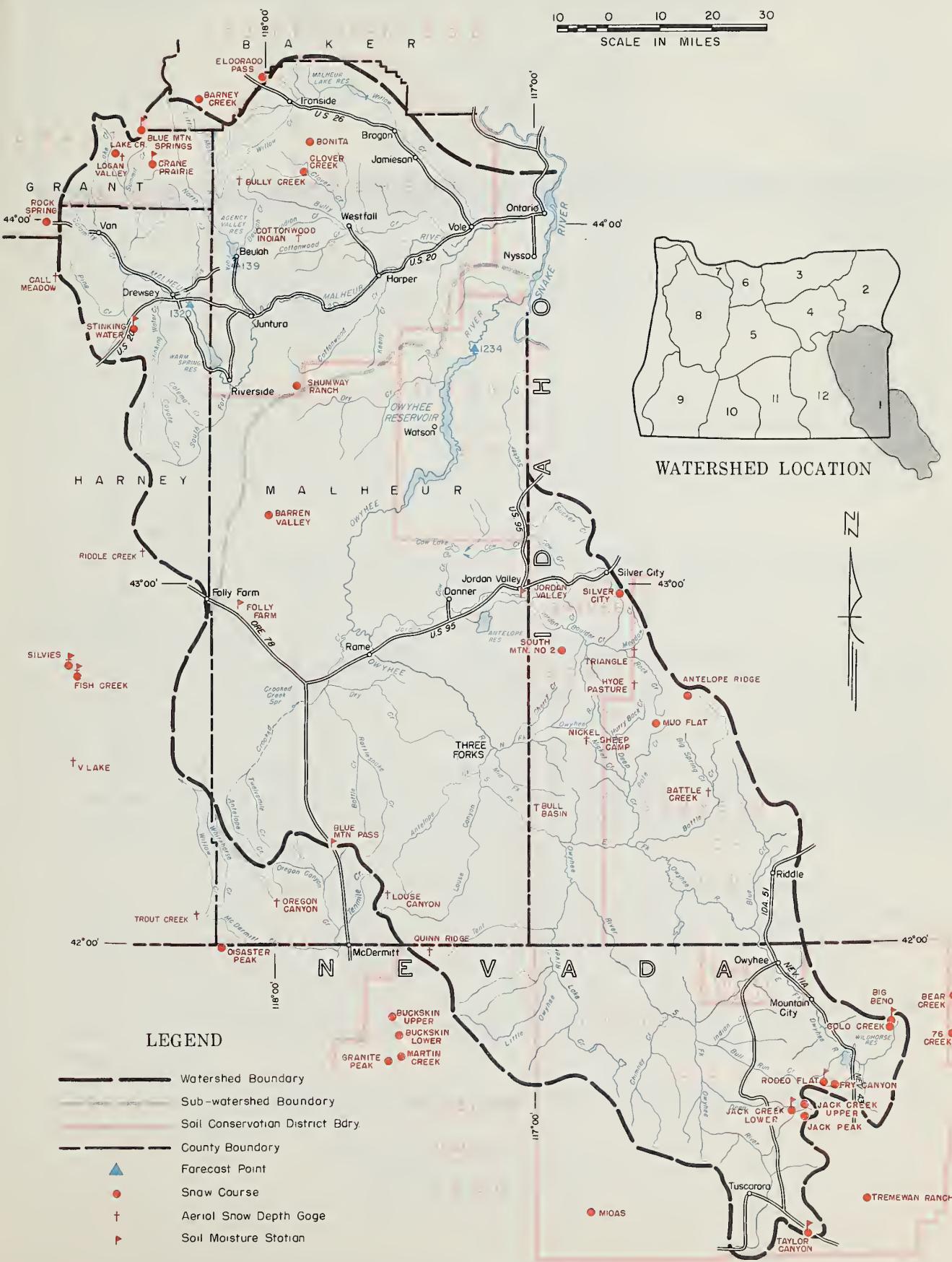
# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <sup>b</sup>	THIS YEAR AS PERCENT OF NORMAL
NO.	NAME				
1320	Malheur near Drewsey	50	April-Sept.	81	62
139	Malheur, North Fork at Beulah <sup>d</sup>	45	April-Sept.	64	70
1234	Owyhee Reservoir net Inflow <sup>d</sup>	225	April-Sept.	430	52
		205	April-July	412	50

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) USBR records of inflow. (h) Not surveyed.

# OWYHEE, MALHEUR WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



## Owyhee, Malheur Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	NORMAL <sup>b</sup>	YEARS IN NORMAL <sup>b</sup>
Barney Creek	5950	c					
Barren Valley	4200	c					
Battle Creek <sup>e</sup>	5700	c					
Bear Creek	7800	4/26	42	18.3	14.0	--	3
Big Bend	6700	5/2	0	0.0	T	--	2
Blue Mountain Springs	5900	4/27	12	5.7	1.0	5.8	5
Buckskin, Lower	6700	c					
Buckskin, Upper	7200	c					
Bull Basin <sup>e</sup>	5600	c					
Bully Creek <sup>e</sup>	5300	c					
Call Meadows <sup>e</sup>	5340	c					
Clover Creek	4100	c					
Cottonwood-Indian <sup>e</sup>	4320	c					
Crane Prairie	5375	c					
Disaster Peak	6500	c					
Eldorado Pass	4600	h					
Fish Creek	7900	c					
Fox Creek	6800	4/26	3	1.1	0.0	--	3
Fry Canyon	6700	5/2	0	0.0	T	--	2
Gold Creek	6600	5/2	0	0.0	T	--	2
Granite Peak	7800	c					
Hyde Pasture <sup>e</sup>	5800	c					
Jack Creek, Lower	6800	5/2	0	0.0	0.0	--	2
Jack Creek, Upper	7250	5/2	T	T	--	--	2
Jack Peak	8420	5/3	73	28.4	17.2	--	2
Lake Creek	5120	c					
Logan Valley <sup>e</sup>	5100	c					
Louse Canyon <sup>e</sup>	6440	c					
Martin Creek	7200	c					
Midas	5700	c					
Mud Flat	5500	4/29	0	0.0	--	--	0
Nickel Sheep Camp <sup>e</sup>	5450	c					
Oregon Canyon <sup>e</sup>	7240	c					
Quinn Ridge <sup>e</sup>	6200	c					
Riddle Creek <sup>e</sup>	5300	c					
Rock Springs	5100	4/28	0	0.0	--	--	1
Rodeo Flat	6800	5/2	0	0.0	T	--	2
Shumway Ranch	4500	c					
Silver City	6400	5/1	11	4.5	0.0	6.9	10
Silvies	6900	c					
South Mountain No. 2	6340	4/30	1	0.3	--	--	4
Stinking Water	4800	h					
Taylor Canyon	6200	5/2	0	0.0	0.0	--	1
Tremewan Ranch	5700	h					
Triangle <sup>e</sup>	5150	c					
Trout Creek <sup>e</sup>	7800	c					
76 Creek	7100	c					
"V" Lake <sup>e</sup>	6600	c					

1d

**WATER SUPPLY OUTLOOK**  
**BURNT, POWDER, PINE, GRANDE RONDE,**  
**IMNAHA WATERSHEDS**  
**OREGON**

*as of*

MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

**GENERAL OUTLOOK**

Cool temperatures and widely varying rainfall in April have combined to delay agricultural operations in northeastern Oregon and have brought the possibility of increased streamflows. This is especially true on Wallowa Valley watersheds, where snow supplies were record low just one month ago.

**SNOW COVER**

Water content of the snowpack at Aneroid Lake snow course increased 5.5 inches during April storms. Snow also increased in smaller amounts at Anthony Lake and Goodrich Lake snow courses where, usually, the April snow-melting conditions make a substantial "withdrawal" of water for early streamflow. Present total snow cover is just slightly better than last year but still about 60 percent average.

**SOIL MOISTURE**

The soil mantle in the mountain watersheds is well "primed" throughout this three-county area with actual measurements of the 4-foot soil depth showing 92 percent of capacity at Tollgate station.

**RESERVOIR STORAGE**

Stored water supplies are well above average and similar to last year at this date. Unity reservoir is full, while Wallowa Lake now holds 36,000 acre feet compared with 37,000 acre feet a year ago.

**STREAMFLOW**

Forecasts of streamflow for the irrigation season, April through September, are all below average for the 15 year period 1943-57, but have been raised in the Wallowa Valley area. Forecasts on the Burnt River and Powder River are set at 67 and 83 percent of average and the Grande Ronde remains at 74 percent average.

Flow of all streams heading on the Wallowa Mountains have been increased over the amounts set on April 1st. Catherine Creek is forecast at 86 percent average; the Imnaha River at 64 percent; East Fork Wallowa at 70 percent; Hurricane Creek at 59 percent; Lostine River at 68 percent and Bear Creek at 69 percent of the 15 year average.

Flow of the Burnt and Grande Ronde rivers is expected to be considerably greater than last year in the irrigation season. All other streams are expected to produce less water than last year.

Flow of many small streams will taper off much earlier than usual and will be extremely short in late season.

Report prepared by:

W. T. FROST AND BOB L. WHALEY
U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE
209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope	Fair	Poor
Baker Valley	Fair	Fair
Big Creek	Fair	Poor
Clover Creek (near North Powder)	Fair	Poor
Cove	Fair	Fair
Durkee	Fair	Poor
Eagle Valley	Fair	Poor
Elgin	Fair	Poor
Enterprise - Joseph	Average	Fair
Hereford - Bridgeport	Average	Fair
Imnaha River	Fair	Poor
LaGrande - Island City	Fair	Fair
Lostine - Wallowa	Fair	Poor
North Powder River - Wolf Creek	Fair	Poor
Pine Valley	Fair	Poor
Powder River - Elk Creek	Fair	Poor
Summerville	Fair	Poor
Sumpter Valley	Average	Fair
Union - Hot Lake	Average	Fair
Unity	Fair	Poor

# RESERVOIR STORAGE (1,000 Ac. Ft.)

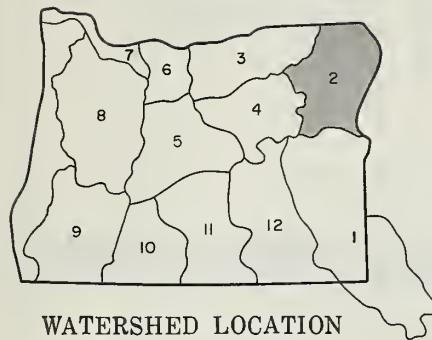
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <sup>b</sup>
Unity	25.2	25.5	25.2	21.8
Wallowa Lake	37.5	35.8	37.2	24.0

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

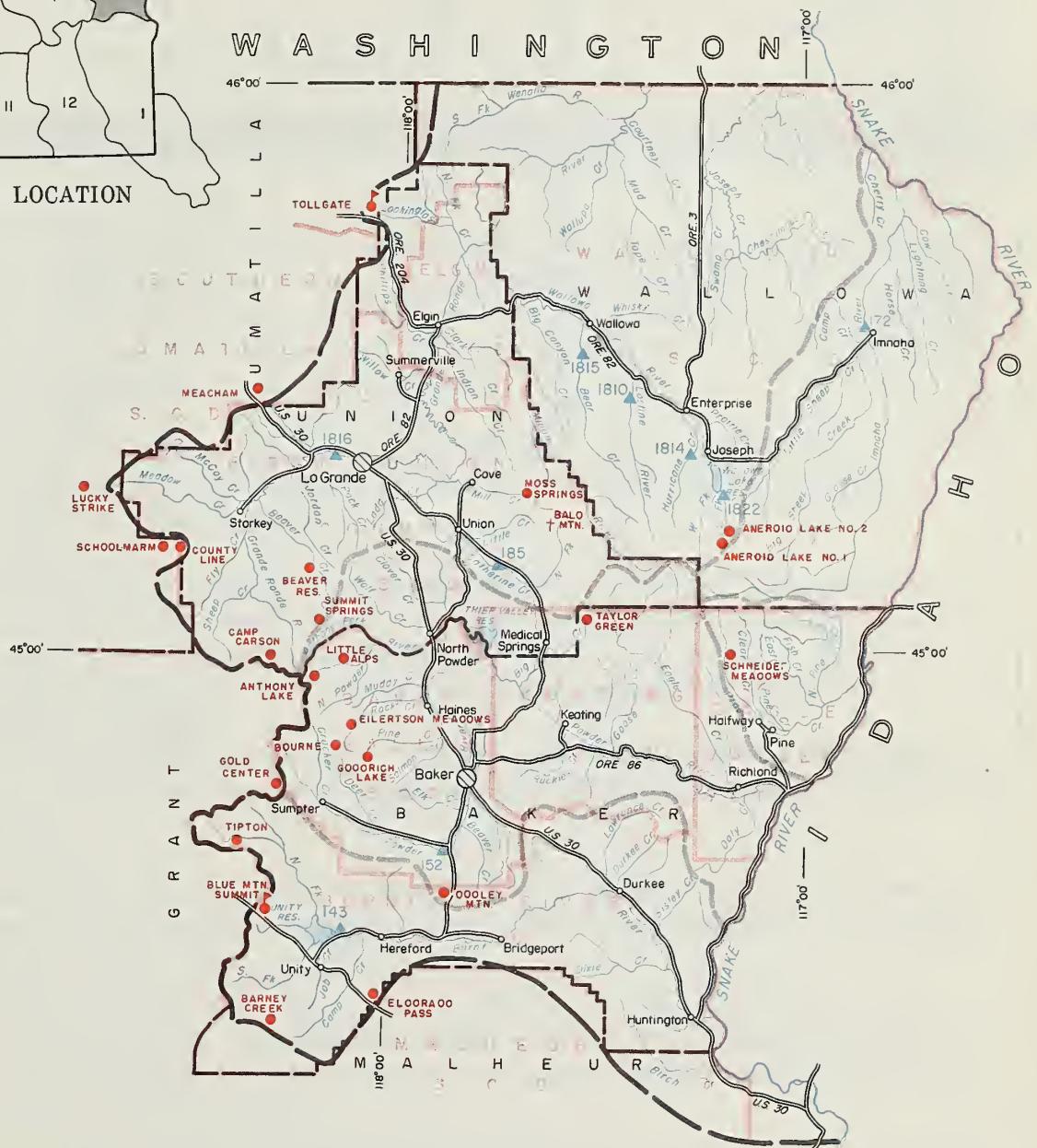
NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <sup>b</sup>	THIS YEAR AS PERCENT OF NORMAL	
					FORECAST THIS YEAR	FORECAST PERIOD
1815	Bear near Wallowa	51	April-Sept.	74	69	
143	Burnt near Hereford <sup>d</sup>	30	April-Sept.	45	67	
185	Catherine near Union	63	April-Sept.	73	86	
1816	Grande Ronde at LaGrande	150	April-Sept.	202	74	
1814	Hurricane near Joseph	29	April-Sept.	49	59	
172	Imnaha at Imnaha	200	April-Sept.	314	64	
1810	Lostine near Lostine	90	April-Sept.	133	68	
152	Powder near Baker	55	April-Sept.	66	83	
1822	Wallowa, East Fork near Joseph <sup>d</sup>	53	April-July	65	82	
		8.5	April-Sept.	12.1	70	
		6.8	April-July	9.7	70	

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Water content partly estimated. (h) Not surveyed.

# BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



#### WATERSHED LOCATION



## LEGEND

The legend includes the following entries:

- Watershed Boundary (represented by a thick black line)
- Sub-watershed Boundary (represented by a thin grey line)
- Sail Conservation District Bdry (represented by a thick red line)
- County Boundary (represented by a thick black line)
- Forecast Point (represented by a blue triangle)
- Snow Course (represented by a red circle)
- Soil Moisture Station (represented by a red flag)
- Aerial Snow Depth Gage (represented by a red cross)

## Burnt, Powder, Pine, Grande Ronde, Imnaha Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	YEARS IN NORMAL <sup>b</sup>	
					LAST YEAR	NORMAL <sup>b</sup>	
Aneroid Lake No. 1	7480	4/24	64	26.0	--	41.2	8
Aneroid Lake No. 2	7000	4/24	51	20.1	--	30.4	7
Anthony Lake	7125	4/27	54	21.5	19.4	--	4
Bald Mountain <sup>e</sup> (Ore.)	6700	4/29	20	8.4	--	--	0
Barney Creek	5950	c					
Beaver Reservoir	5340	4/29	6	3.1	2.5	7.3	5
Blue Mountain Summit	5098	f					
Bourne	5800	4/26	17	7.4	5.5	--	1
Camp Carson	5970		D I S C O N T I N U E D				
County Line	4800	h					
Dooley Mountain	5430	4/25	0	0.0	0.0	--	4
Eilertson Meadows	5400	4/25	4	1.5	0.0	--	2
Eldorado Pass	4600	h					
Gold Center	5340	4/26	2	0.7	T	--	1
Goodrich Lake	6775	4/26	53	23.5 <sup>g</sup>	28.2	--	2
Little Alps	6200	4/27	23	8.7	6.9	--	0
Lucky Strike	5050	4/26	20	7.4	4.2	--	0
Meacham	4300	4/27	0	0.0	0.0	2.6	8
Moss Springs	5850	4/28	38	15.8	20.3	--	4
Schneider Meadows	5400	4/26	45	21.8	17.4	--	0
Schoolmarm	4775	h					
Summit Springs	6000		D I S C O N T I N U E D				
Taylor Green	5740	c					
Tipton	5100	4/25	0	0.0	0.0	1.8	5
Tollgate	5070	4/27	28	12.6	12.1	18.1	8

# WATER SUPPLY OUTLOOK

## UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

Cool temperatures and below average rainfall in April have combined to delay agricultural operations in the Umatilla-Walla Walla area and have resulted in reductions of water supply forecasts that were already below average. Total water outlook is mostly "fair" to "poor" except for "near average" outlook for lands served from stored water supplies.

#### SNOW COVER

Water content of the mountain snowpack is only slightly greater than half of the average for the 15 years, 1943-57, and is a little greater than last year, particularly at the highest stations.

#### SOIL MOISTURE

The soil-mantle in the mountain watersheds is well "primed" throughout the area. At Tollgate station the electronic soil-moisture units indicate the water content of the 4-foot soil depth is up to 92 percent of capacity. At Battle Mountain station the soil is about 60 percent of capacity in wetness.

#### RESERVOIR STORAGE

Cold Springs reservoir has been full since late March, while McKay reservoir now contains 54,400 acre feet compared with 69,500 acre feet at this date last year.

#### STREAMFLOW

Forecasts of streamflow for the April-September period vary from 71 percent of the average (1943-57) on McKay Creek to 83 percent average on the Umatilla and the Walla Walla.

A total of 22,000 acre feet are forecast to flow into McKay reservoir in the April-July period. Added to the 54,400 acre feet now in storage, the total of about 75,000 acre feet will have to be used carefully to provide sufficient water for all lands served.

The smaller streams, in both the Walla Walla and Umatilla basins, can expect only "fair" early season supplies and "poor" to extremely short late season supplies.

Report prepared by:

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# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek	Fair	Poor
Butter Creek	Fair	Poor
Dry Creek	Fair	Poor
Dugger Creek	Fair	Poor
Johnson Creek	Fair	Poor
McKay Creek	Fair	Fair
Mill Creek	Fair	Fair
Mud Creek	Fair	Poor
Pine Creek	Fair	Poor
Rhea Creek	Fair	Poor
Rock Creek	Fair	Poor
Umatilla River (Cold Springs Reservoir)	Average	Fair
Umatilla River, Main	Fair	Fair
Umatilla River (McKay Res.)	Average	Poor
Walla Walla River, Little	Fair	Fair
Walla Walla River, Main	Fair	Fair
Walla Walla River, N. Fork	Fair	Fair
Walla Walla River, S. Fork	Fair	Fair
Willow Creek	Fair	Poor

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL b
Cold Springs McKay	50.0 74.0	50.0 54.4	50.0 69.5	48.8 66.4

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

NO.	NAME	FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b	THIS YEAR AS PERCENT OF NORMAL
		NO.	NAME				
2213	McKay near Pilot Rock	22	April-Sept.	31	71		
		22	April-July	31	71		
2236	Umatilla near Gibbon	80	April-Sept.	96	83		
		155	April-Sept.	187	83		
223	Umatilla at Pendleton	150	April-July	182	82		
		63	April-Sept.	76	83		
214	Walla Walla, South Fork near Milton	51	April-July	62	82		

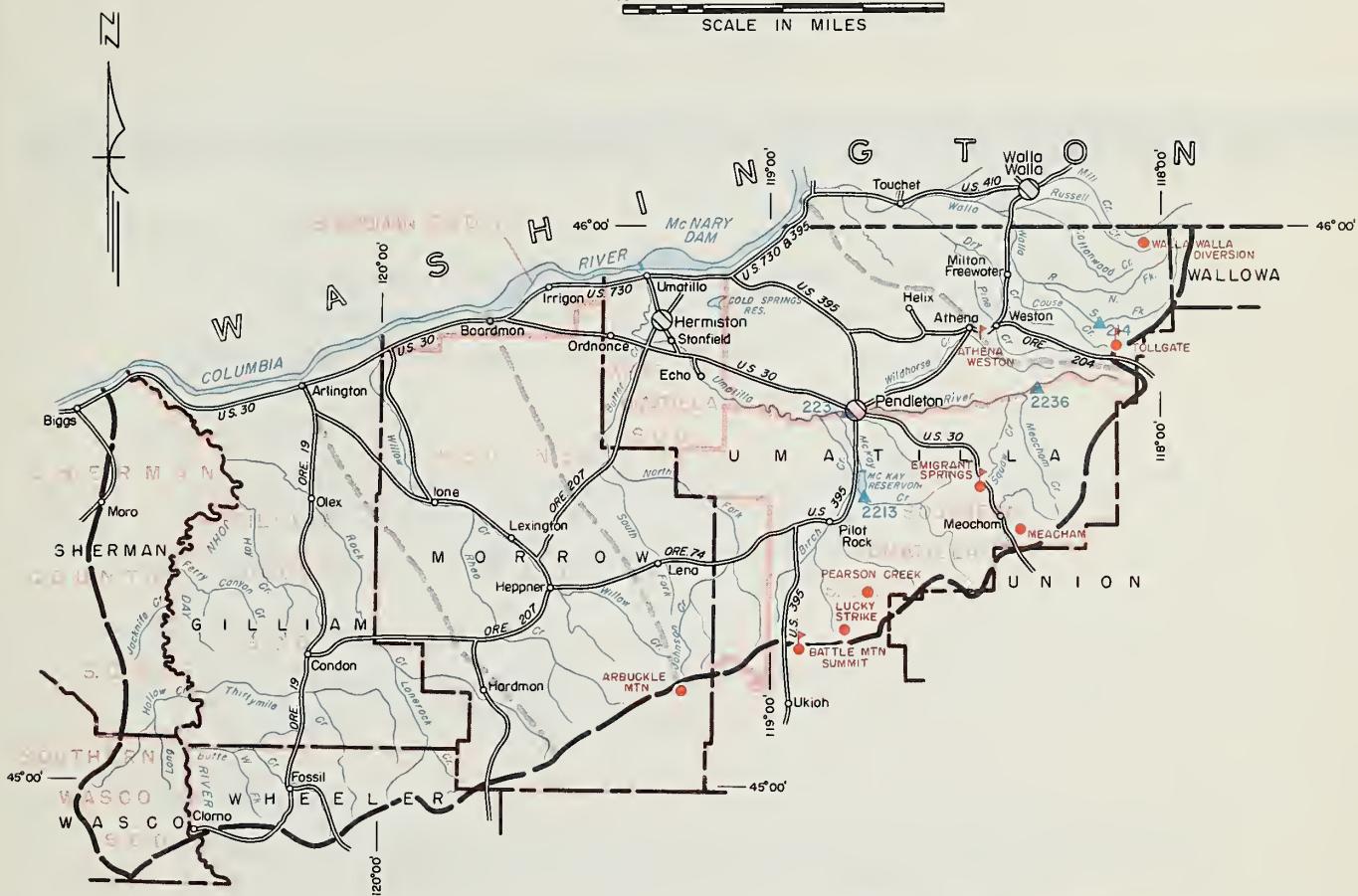
# SNOW

SNOW COURSE	CURRENT INFORMATION				PAST RECORD			
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (inches)	WATER CONTENT (inches)	WATER CONTENT (inches)		YEARS IN NORMAL b
						LAST YEAR	NORMAL b	
Arbuckle Mountain	5400	4/29	0	0.0	0.0	--	--	4
Battle Mountain Summit	4340	4/26	2	T	--	--	--	0
Emigrant Springs	3925	4/27	0	0.0	0.0	1.6	8	
Lucky Strike	5050	4/26	20	7.4	4.2	--	--	0
Meacham	4300	4/27	0	0.0	0.0	2.6	8	
Pearson Creek	3000	4/29	0	0.0	0.0	--	--	0
Tollgate	5050	4/27	28	12.6	12.1	18.1	8	

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

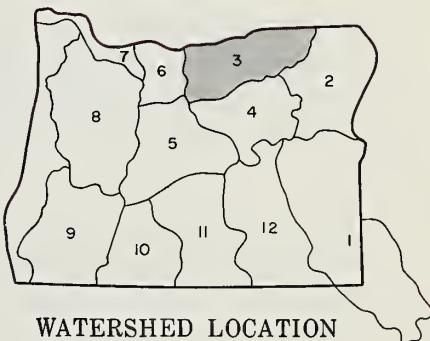
# UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- Soil Moisture Station



WATERSHED LOCATION



# WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

## GENERAL OUTLOOK

Cool temperatures and slightly above average precipitation during April have retarded agricultural operations in the John Day basin, but the water supply outlook remains "fair" to "poor".

## SNOW COVER

Water content of the mountain snowpack is only 56 percent of the 15 year average (1943-57) and about 132 percent of last year at this date. At extremely high points the snow cover actually increased slightly.

## SOIL MOISTURE

The soil-mantle in the mountain watersheds is well "primed" with the 4-foot soil depth generally well saturated.

## STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, are essentially unchanged from the estimates made on April 1st.

Flow of the main John Day at Prairie City is forecast at 33,000 acre feet for the 6 months, April through September. This forecast is 61 percent of the 15 year average and is very similar to the 35,840 acre feet measured in the same six months last year. The Middle Fork is forecast at 59 percent of average.

Water supplies in the Beech Creek - Fox Creek - Long Creek area will be only "fair" in the early season and will taper off much earlier than usual. The Monument-Kimberly area will have "fair" water supplies this season.

Indian and Pine Creeks and other small streams on the north slope of the Strawberry range will have "fair" early season water, but will find "poor" supplies in the late season.

Strawberry Creek is forecast at 74 percent of average.

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# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD		RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
	SPRING SEASON	LATE SEASON			THIS YEAR	LAST YEAR	NORMAL b
Beech Creek	Fair	Poor					
Beech Creek-Fox-Long Cr.	Fair	Poor					
Bridge-Mountain Creeks	Fair	Poor					
Camas Creek	Fair	Fair					
Cherry Creek	Fair	Poor					
Indian-Pine Creeks	Fair	Poor					
John Day River, Main Fork	Average	Fair					
John Day River, Mid. Fork	Average	Fair					
John Day River, N. Fork	Average	Fair					
John Day River, S. Fork	Fair	Fair					
Monument-Kimberly	Fair	Fair					
Strawberry Creek	Fair	Fair					

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b		THIS YEAR AS PERCENT OF NORMAL
				LAST YEAR	NORMAL b	
2415	John Day at Prairie City	33	April-Sept.	54	61	
		29	April-July	49	59	
2433	John Day, Middle Fork at Ritter	80	April-Sept.	135	59	
2434	Strawberry near Prairie City	6.7	April-Sept.	9.1	74	

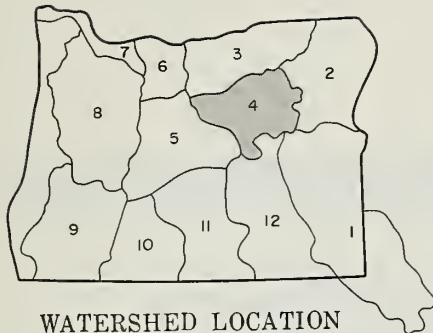
# SNOW

SNOW COURSE	CURRENT INFORMATION				PAST RECORD		
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	YEARS IN NORMAL b
						LAST YEAR	NORMAL b
Anthony Lake	7125	4/27	54	21.5	19.4	--	4
Arbuckle Mountain	5400	4/29	0	0.0	0.0	--	4
Battle Mountain Summit	4340	4/26	2	T	--	--	0
Beech Creek Summit	4800	4/27	0	0.0	0.0	--	4
Blue Mountain Springs	5900	4/27	12	5.7	1.0	5.8	5
Blue Mountain Summit	5098	f					
Derr	5670	c					
Dixie Springs	6650	c					
Gold Center	5340	4/26	2	0.7	T	--	1
Indian Creek Butte <sup>e</sup>	6550	c					
Izee Summit	5293	4/27	T	T	0.0	1.6	5
Lucky Strike	5050	4/26	20	7.4	4.2	--	0
Marks Creek	4540	4/29	0	0.0	0.0	--	4
Ochoco Meadows	5200	c					
Olive Lake	6000	4/26	36	14.1	12.8	--	3
Schoolmarm	4775	g					
Snow Mountain	6300	c					
Starr Ridge	5156	4/27	0	0.0	0.0	0.9	5
Tipton	5100	4/25	0	0.0	0.0	1.8	5
Williams Ranch	4500	c					

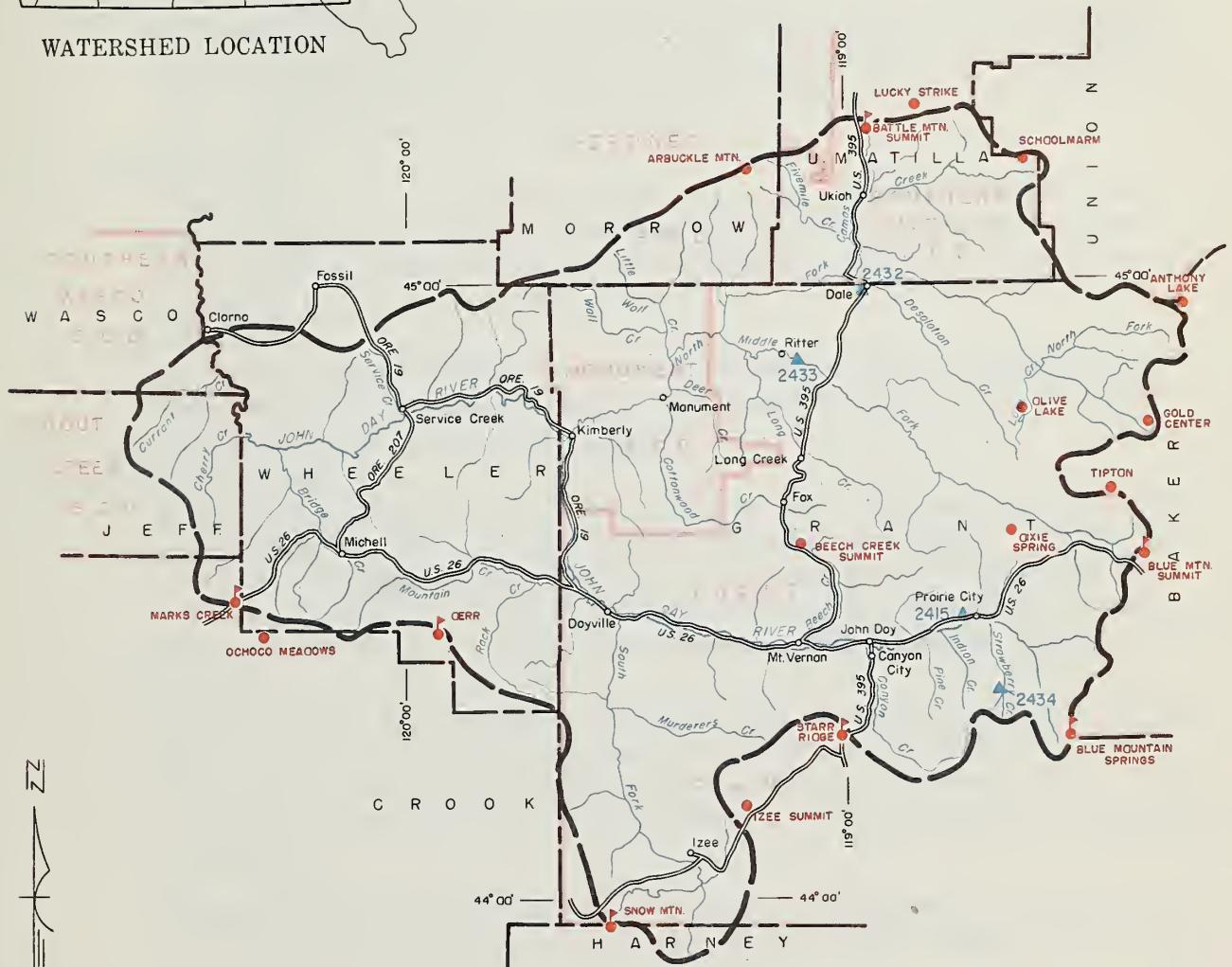
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed.

# UPPER JOHN DAY WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- Soil Moisture Station



# WATER SUPPLY OUTLOOK

## UPPER DESCHUTES, CROOKED WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

Cool temperatures and above average precipitation during April have retarded agricultural operations in the Deschutes-Crooked area and have improved the water supply outlook slightly. The outlook is mostly only "fair" to "poor" except where stored water will "save the day".

#### SNOW COVER

Water content of the mountain snowpack increased considerably at the highest stations and is now 80 percent of average and more than double that of last year. These increases occurred at a time when the snowpack is normally being reduced by snow-melt conditions.

#### SOIL MOISTURE

The soil-mantle in the mountain watersheds is well "primed". Readings from the electronic soil station at Marks Creek Summit indicate the 4-foot soil depth is wet up to 99 percent of capacity.

#### RESERVOIR STORAGE

Stored water supplies have definitely improved in Ochoco reservoir which now holds 20,180 acre feet. However, at this time last year Ochoco held 34,700 acre feet. Wickiup has 183,000 acre feet compared with 187,200 acre feet last year. Crescent Lake has 45,500 acre feet compared with 68,700 a year ago and Crane Prairie has 32,000 acre feet compared with 42,700 a year ago.

#### STREAMFLOW

Flow of Crooked River near Post is forecast at 66 percent average (1943-57) for the six months, April through September. Ochoco reservoir net inflow for the same period is forecast at 15,000 acre feet or 45 percent average. If this flow is received, Ochoco can expect an additional 7,500 acre feet during the balance of the season.

The main Deschutes at Benham Falls is forecast at 90 percent of average and the Little Deschutes near Lapine at 75 percent of the 15 year average.

Squaw Creek and Tumalo Creek are forecast at 84 and 82 percent of average for the April-September period.

Late season water shortages may occur on the Lone Pine, Arnold, North Unit and Ochoco Irrigation Districts.

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# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair", "Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation Dist.	Average	Poor
Bear Creek	Fair	Poor
Beaver Creek	Fair	Poor
Camp Creek	Fair	Poor
Central Ore. Irrig. Dist.	Average	Fair
Crooked River	Fair	Poor
Deschutes River	Average	Fair
Hay - Trout Creeks	Fair	Poor
Lone Pine Irrig. Dist.	Average	Poor
Mill Creek	Fair	Poor
North Unit Irrig. Dist.	Average	Poor
Ochoco Creek	Fair	Poor
Sisters Irrigation Dist.	Fair	Poor
Snow Creek Irrig. Dist.	Fair	Fair
Squaw Creek Irrig. Dist.	Fair	Poor
Swalley Ditch	Average	Average
Tumalo Project	Average	Fair
Walker Basin Irrig. Dist.	Fair	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <i>b</i>
Crane Prairie	55.3	32.0	42.7	47.6
Crescent Lake	80.0	45.5	68.7	47.1
Ochoco	46.0	20.2	34.7	39.7
Wickiup	200.0	183.1	187.2	140.4

Note: The U. S. Bureau of Reclamation indicates that dead storage in the amount of 5360 acre feet may be included in the current storage figure for Crescent Lake.

About 12,000 acre feet of water has been transferred from Crane Prairie to Wickiup for holding since the latter reservoir is not expected to fill.

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

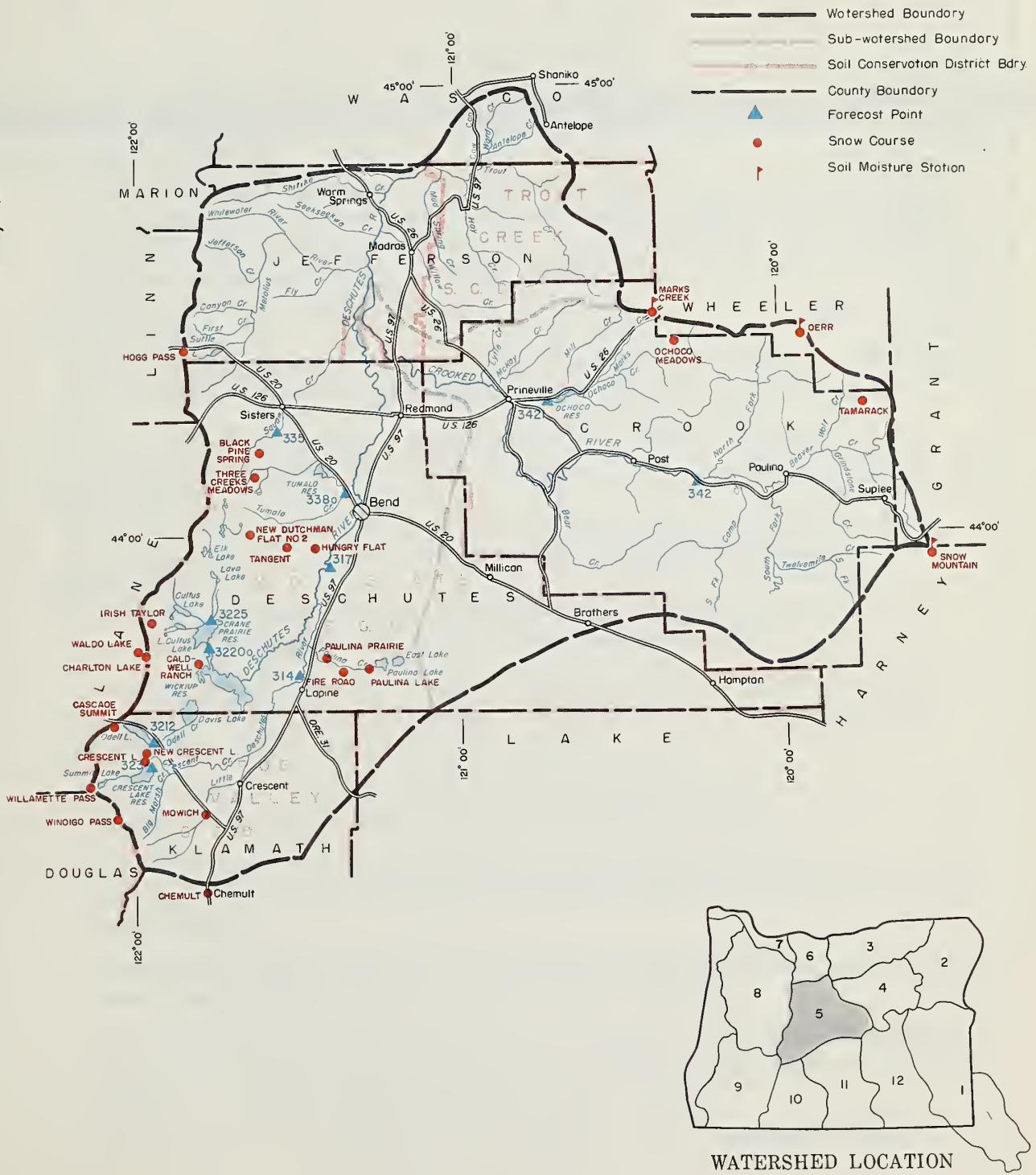
NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <i>b</i>	
				THIS YEAR AS PERCENT OF NORMAL	
3220a	Crane Prairie Reservoir total inflow	100	April-Sept.	143	70
323	Crescent at Crescent Lake <sup>d</sup>	22	April-Sept.	31	71
342	Crooked near Post	85	April-Sept.	129	66
317	Deschutes at Benham Falls <sup>d</sup>	540	April-Sept.	602	90
		365	April-July	404	90
3225	Deschutes below Snow Creek	55	April-Sept.	74	74
314	Deschutes, Little near Lapine <sup>d</sup>	85	April-Sept.	113	75
		70	April-July	100	70
3421	Ochoco Reservoir net inflow	15	April-Sept.	32	45
3212	Odell near Crescent	25	April-Sept.	34	74
335	Squaw near Sisters	46	April-Sept.	55	84
338a	Tumalo near Bend <sup>d</sup>	45	April-Sept.	55	82

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

## UPPER DESCHUTES, CROOKED WATERSHEDS

A horizontal scale bar with tick marks at 10, 0, 10, 20, and 30. Below the bar, the text "SCALE IN MILES" is centered.

## LEGEND



#### WATERSHED LOCATION

# Upper Deschutes, Crooked Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD			
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR	NORMAL <sup>b</sup>	YEARS IN NORMAL <sup>b</sup>
Black Pine Spring	4600	4/29	0	0.0	0.0	0.8	6	
Caldwell Ranch	4400	c						
Cascade Summit	4880	4/26	63	28.2	9.9	31.8	12	
Charlton Lake	5750	c						
Chemult	4760	4/27	0	0.0	--	0.5	8	
Crescent Lake	4760	D I S C O N T I N U E D						
Derr	5670	c						
Fire Road	5050	4/25	0	0.0	0.0	--	3	
Hogg Pass	4755	4/26	89	37.6	22.4	53.5	11	
Hungry Flat	4400	4/28	0	0.0	0.0	0.0	6	
Irish-Taylor	5500	c						
Marks Creek	4540	4/29	0	0.0	0.0	--	4	
Mowich	4700	4/25	0	0.0	0.0	--	1	
New Crescent Lake	4800	4/26	17	7.7	0.0	6.3	6	
New Dutchman Flat No. 2*	6400	4/28	108	49.6	32.8	62.8	12	
Ochoco Meadows	5200	c						
Paulina Lake	6330	4/25	33	14.7	3.6	--	3	
Paulina Prairie	4285	4/25	0	0.0	0.0	--	2	
Snow Mountain	6300	c						
Tamarack	4800	c						
Tangent	5400	4/28	29	12.6	T	13.3	6	
Three Creeks Meadows	5600	4/29	22	11.4	T	16.8	9	
Waldo Lake	5500	c						
Willamette Pass	5600	4/27	97	44.4	20.3	49.5	9	
Windigo Pass	5800	4/26	87	39.7	19.1	52.5	9	

\*New snow course replacing  
New Dutchman Flat; normal  
is for old course.

# WATER SUPPLY OUTLOOK

## HOOD, MILE CREEKS,

## LOWER DESCHUTES WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

Cool temperatures and above normal precipitation during April have increased the irrigation water supply outlook for Hood River and Wasco Counties. Agricultural operations were delayed by these weather conditions, while the water supplies are now expected to be nearer "average" in the early season but still only "fair" in the late season on smaller streams.

#### SNOW COVER

Snow cover has increased at higher elevations and has not melted as rapidly as usual at lower elevations due to below normal temperatures in April.

Water content of the snow is considerably above last year at this time but is still only 75 percent of the 1943-57 average.

#### SOIL MOISTURE

Watershed soils are well "primed" and are not expected to retain much of the remaining snow-melt water as it runs off the watersheds of this area.

#### STREAMFLOW

Streamflow forecasts for the April-September period have increased in this area and now range from 73 to 80 percent of the 1943-57 average.

The White River is expected to flow 130,000 acre feet during the April-September period or 73 percent of average. This is slightly greater than last year's flow of 125,100 acre feet for this same period.

The West Fork of Hood River forecast is now 140,000 acre feet or 80 percent of average as compared to last year's flow of 166,700 acre feet.

Hood River near Hood River is expected to flow 285,000 acre feet or 78 percent. Last year the flow at this station was 348,800 acre feet for this same April-September period.

Water users on streams with little or no storage can expect below "average" early season water supplies, dropping to "fair" in the late season.

The flow of Hood River\* during April was 113 percent of the 1943-57 average, reflecting the above normal precipitation. The flow for the water year to date (October 1 to date) has been only 84 percent of average.

\*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

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**WATER SUPPLY OUTLOOK** expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch	Average	Fair
Badger Creek	Average	Fair
Dee Irrigation District	Average	Fair
East Fork Irrig. Dist.	Average	Fair
Farmers Irrig. Dist.	Average	Fair
Glacier Irrig. Dist.	Average	Fair
Hood River Irrig. Dist.	Average	Fair
Juniper Flat	Average	Fair
Middle Fork Irrig. Dist.	Average	Fair
Mile Creeks	Fair	Poor
Mill Creek	Fair	Poor
Mount Hood Irrig. Dist.	Average	Fair
Rock-Gate-Threemile Crs.	Fair	Poor
Tygh Creek	Fair	Poor
White River	Average	Fair

**RESERVOIR STORAGE (1,000 Ac. Ft.)**

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <i>b</i>

**STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)**

NO.	NAME	FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <i>b</i>	THIS YEAR AS PERCENT OF NORMAL
		NO.	NAME				
437	Hood near Hood River <sup>d</sup>			285	April-Sept.	365	78
				245	April-July	311	79
438	Hood, West Fork near Dee			140	April-Sept.	174	80
				120	April-July	151	80
3613	White below Tygh Valley			130	April-Sept.	178	73
				115	April-July	161	71

**SNOW**

SNOW COURSE	CURRENT INFORMATION				PAST RECORD		
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
						LAST YEAR	NORMAL <i>b</i>
Brooks Meadows	4300	<i>c</i>					
Clear Lake	3800	4/27	7	2.4	0.0	11.8	7
Clear Lake Experimental Course		4/27	20	8.0	--	--	0
Greenpoint Reservoir	3400	<i>c</i>					
Knebal Springs	3850	<i>c</i>					
Phlox Point	5600	4/26	134	56.7	45.8	71.4	14
Red Hill	4400	<i>c</i>					
Still Creek	3700	4/26	46	19.6	8.9	21.2	14
Tilly Jane	6000	<i>c</i>					
Ulrich Ranch Junction	3350	<i>c</i>					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

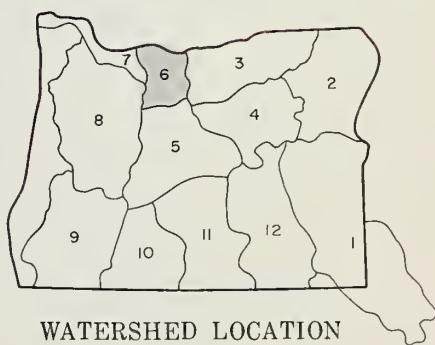
# HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

10 0 10 20  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course



WATERSHED LOCATION



# WATER SUPPLY OUTLOOK

## LOWER COLUMBIA WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

The water supply outlook for spring and summer flow of the Columbia River near The Dalles did not change significantly during April. The forecasts have been raised slightly as a result of heavy snowfall and precipitation in the northern half of the basin. The river is now forecast at 92 percent of the 15 year normal (1943-57).

#### SNOW COVER

Snowfall during April was spotty, but many high altitude courses in the Columbia Basin increased in water content from April 1 to May 1. The low elevation snow continued to melt fast throughout the entire basin. In general the snowline is receding faster than normal throughout the basin and streamflow as a result was high during the month of April.

#### SOIL MOISTURE

Watershed soils in the northern half of the basin are well primed and not absorbing a significant amount of snow water as the snowpack melts. Soil moisture at the lower elevations dried out during April and it will take an unusually heavy runoff at this time to produce significant runoff in the southern half of the basin.

#### STREAMFLOW

The April flow of the Columbia River near The Dalles\* rose slightly above normal to 116 percent of the 1943-57 average and since October 1st has flowed as follows:

<u>Month</u>	<u>Percent of Normal Discharge (1943-57)</u>			
October	182	Adjusted for storage		
November	161	"	"	"
December	132	"	"	"
January	91	"	"	"
February	96	"	"	"
March	109	"	"	"
April	116	"	"	"

\*From preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by:

W. T. FROST AND BOB L. WHALEY  
U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE  
209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

and:

M. W. NELSON  
U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE  
P.O. Box 1247, BOISE, IDAHO

# STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.)

NO.	NAME	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <sup>b</sup>	THIS YEAR AS PERCENT OF NORMAL
09-B	Columbia at The Dalles		97,600 66,200	April-Sept. April-June	106,100 72,000	92 92

## HISTORICAL DATA (Columbia River at The Dalles)

YEAR	STREAMFLOW <sup>c</sup> (1,000 A.F.)			PEAK <sup>e</sup> (1,000 cfs)	DATE
	APR. - SEPT.	APR. - JUNE	MAY - JUNE		
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31

## LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria) <sup>f</sup>

VANCOUVER <sup>g</sup> GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 cfs.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		RIVER MILES						
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Observed flow corrected for storage in F.D.R., Kootenai, Pend Oreille, Flathead, Hungry Horse, Lake Chelan, Coeur d'Alene and Grand Coulee Equalizer. (d) Not scheduled. (e) Observed peak. (f) Based on Corps of Engineers automatic water stage recorder data. (g) Vancouver Weather Bureau gage zero is 1.82' above M.S.L. All other readings are in feet above M.S.L.

# LOWER COLUMBIA WATERSHEDS

A horizontal scale bar with tick marks at 0, 10, 20, and 30. Below the scale bar, the text "SCALE IN MILES" is centered.



### WATERSHED LOCATION

## LEGEND

— Watershed Boundary  
— Sub-watershed Boundary  
— Soil Conservation District Bdry  
— County Boundary  
— River Miles



UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
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PORTLAND 4, OREGON

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# WATER SUPPLY OUTLOOK

## WILLAMETTE WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

Cool temperatures and above average precipitation during April have retarded agricultural operations but have improved the water supply outlook for Willamette Valley lands to "average" for the early season and "fair" for the late season.

#### SNOW COVER

Water content of the mountain snowpack is still only 78 percent of the 15 year average (1943-57) but has increased to 234 percent of last year at this date. Instead of a normal decrease in the snow cover, substantial increases were measured at Phlox Point, Hogg Pass, McKenzie, Cascade Summit and Willamette Pass snow courses.

#### SOIL MOISTURE

The soil-mantle in mountain watersheds is well "primed".

#### RESERVOIR STORAGE

Storage of water in the five multi-purpose reservoirs serving Willamette Valley is above average for this date. Adequate irrigation water supplies will be available from these sources.

#### STREAMFLOW

Forecasts of streamflow for the April-September period have been increased by the above average precipitation and snow accumulation and now vary from a low of 73 percent average on the North Santiam to a high of 93 percent average on the Clackamas.

Smaller streams, without reservoir water supplies, are expected to taper off in flow earlier than usual with some "shortages" of water to be expected.

Flow of the Middle Fork of the Willamette during April\* was 117 percent of average and the flow from October 1st to date has been 73 percent average.

\*Preliminary data furnished by U.S. Geological Survey, Portland, Oregon

Report prepared by: \_\_\_\_\_  
 W. T. FROST AND BOB L. WHALEY  
 U.S. DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE  
 209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya	Average	Fair
Clackamas	Average	Fair
McKenzie	Average	Fair
Molalla	Average	Fair
Santiam, North	Average	Fair
Santiam, South	Average	Fair
Willamette, Coast Fork	Average	Fair
Willamette, Middle Fork	Average	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <i>b</i>
Cottage Grove	30.0*	23.3	24.4	27.0
Detroit	299.9*	274.3	284.0	189.5
Dorena	70.5*	54.2	55.2	52.4
Fern Ridge	94.2*	93.0	84.5	82.6
Lookout Point	337.2*	295.9	306.8	--

\*Multiple purpose reservoir--space reserved primarily for flood runoff.

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <i>b</i>	THIS YEAR AS PERCENT OF NORMAL
NO.	NAME				
5911	Clackamas at Big Bottom	145	April-Sept.	184	79
		115	April-July	150	77
593	Clackamas at Estacada	820	April-Sept.	879	93
		710	April-July	763	93
592	Clackamas above Three Lynx	615	April-Sept.	674	91
		525	April-July	578	91
534	McKenzie at McKenzie Bridge	550	April-Sept.	640	86
		420	April-July	488	86
535	McKenzie near Vida	1080	April-Sept.	1362	79
		875	April-July	1120	78
598	Oak Grove Fork above Power Intake	160	April-Sept.	198	81
		125	April-July	156	80
5215	Row near Dorena	105	April-Sept.	114	92
		100	April-July	109	92
554	Santiam, North at Mehama <sup>d</sup>	710	April-Sept.	968	73
		620	April-July	866	72
5516	Santiam, South at Waterloo	560	April-Sept.	652	86
		525	April-July	616	85
5117	Willamette, Mid. Fork below North Fork near Oakridge	830	April-Sept.	909	91
		724	April-July	804	90
516	Willamette at Salem <sup>d</sup>	5000	April-Sept.	5461	92
		4495	April-July	4942	91

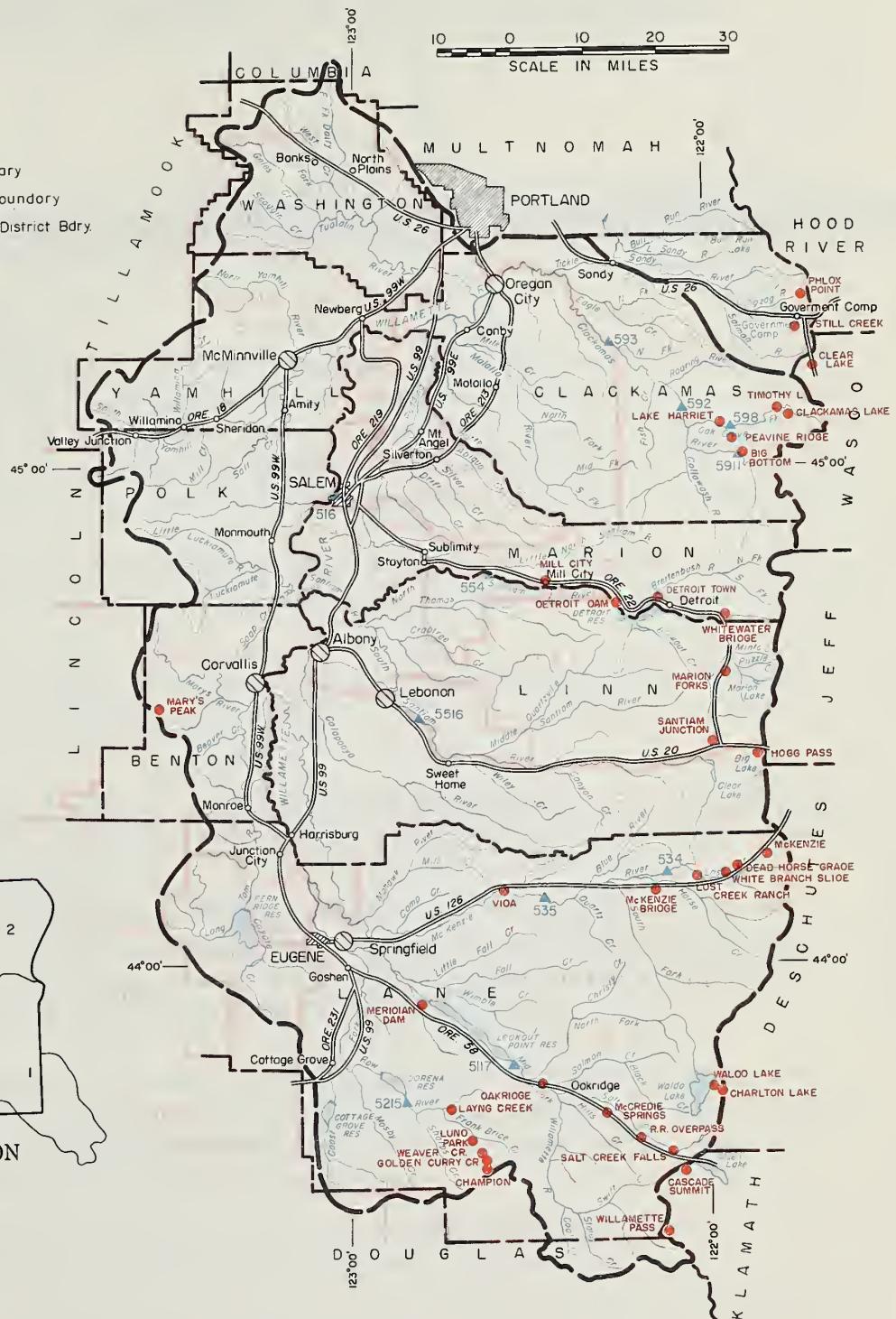
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

# WILLAMETTE WATERSHEDS

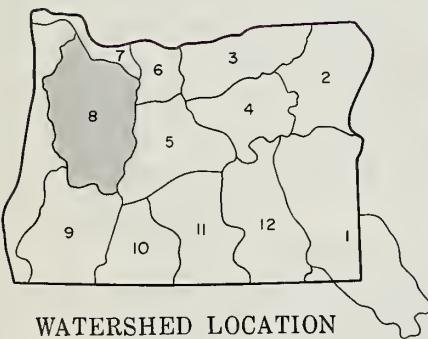
10 0 10 20 30  
SCALE IN MILES

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course



## WATERSHED LOCATION



# Willamette Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
		DATE OF SURVEY	SNOW DEPTH (inches)	WATER CONTENT (inches)	WATER CONTENT (inches)	LAST YEAR	NORMAL <i>b</i>
Big Bottom	2118	4/30	0	0.0	0.0	2.2	6
Cascade Summit	4880	4/26	63	28.2	9.9	31.8	12
Champion	4500	<i>c</i>					
Charlton Lake	5750	<i>c</i>					
Clackamas Lake	3400	<i>c</i>					
Clear Lake	3500	4/27	7	2.4	0.0	11.8	7
Clear Lake Experimental Course		4/27	20	8.0	--	--	0
Dead Horse Grade	3800	4/28	30	13.4	0.0	--	3
Detroit Town	1600	4/26	0	0.0	0.0	0.0	7
Detroit Dam	1580	4/26	0	0.0	0.0	0.0	7
Golden Curry Creek	3136	<i>c</i>					
Hogg Pass	4755	4/26	89	37.6	22.4	53.5	11
Lake Harriet	2045	4/30	0	0.0	0.0	0.0	6
Laying Creek	1200	<i>c</i>					
Lost Creek Ranch	1956	4/28	0	0.0	0.0	--	3
Lund Park	1740	<i>c</i>					
Marion Forks	2730	4/26	9	3.5	0.0	5.1	9
Marys Peak	3620	<i>c</i>					
McCredie Springs	2120	4/26	0	0.0	0.0	0.0	8
McKenzie	4800	4/28	92	43.4	22.8	--	3
McKenzie Bridge	1372	4/28	0	0.0	0.0	--	3
Meridian Dam	750	4/26	0	0.0	0.0	0.0	7
Mill City	826	4/26	0	0.0	0.0	0.0	8
Oakridge	1310	4/26	0	0.0	0.0	0.0	8
Peavine Ridge	3500	4/29	36	16.0	T	21.0	9
Phlox Point	5600	4/26	134	56.7	45.8	71.4	14
Railroad Overpass	2750	4/26	0	0.0	0.0	0.1	7
Salt Creek Falls	4000	4/26	35	14.6	0.0	16.2	8
Santiam Junction	3990	4/26	32	13.7	0.0	18.2	10
Still Creek	3700	4/26	46	19.6	8.9	21.2	14
Timothy Lake	3295	4/29	26	11.2	0.0	--	2
Vida	800	4/28	0	0.0	0.0	--	3
Waldo Lake	5500	<i>c</i>					
Weaver Creek	2440	<i>c</i>					
White Branch Slide	2800	4/28	0	0.0	0.0	--	3
Whitewater Bridge	2175	4/26	0	0.0	0.0	T	7
Willamette Pass	5600	4/27	97	44.4	20.3	49.5	9

# WATER SUPPLY OUTLOOK

## ROGUE, UMPQUA WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

Cool temperatures during April were accompanied by above average precipitation in the Umpqua area and below average precipitation in the Rogue area. Agricultural operations were delayed but there has been little change in water supply outlook except for the delay in starting to use irrigation water supplies from storage.

The outlook continues to be mostly "fair" and only up to "average" in a few places.

#### SNOW COVER

Water content of the mountain snowpack continues at about 83 percent of the 15 year (1943-57) average but has increased greatly over last year's snowpack at this date.

Cold temperatures have caused snowpack to increase, rather than decrease, at Annie Spring, Park Headquarters, Diamond-Crater Summit and Windigo Pass snow courses.

#### SOIL MOISTURE

The soil-mantle in mountain watersheds is fairly well "primed" at most points and will soak up only a very limited amount of snow-melt water.

#### RESERVOIR STORAGE

Total stored water supplies are 79 percent of the 15 year average and only 77 percent of that in storage one year ago at this date. Howard Prairie reservoir has 20,828 acre feet in storage to replace the 8,300 acre feet usually available from Emigrant reservoir, which is under re-construction this year.

#### STREAMFLOW

Forecasts of streamflow for the irrigation season, April through September, are still well below average and vary from a low of 65 percent average on Little Butte, North Fork to a high of 85 percent average on Illinois River and on Rogue River above Prospect and Rogue River at Grants Pass.

The Applegate River is forecast to flow 71 percent average and the North Umpqua River below Lake Creek is forecast at 77 percent average.

Forecasts for Little Butte, South Fork indicate an 81 percent average flow for the April-July period and the minimum flow dropping to 100 second-feet by June 3rd this season.

Report prepared by:

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209 S.W. FIFTH AVENUE, PORTLAND 4, OREGON

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair", "Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek	Fair	Fair
Applegate River, Big	Fair	Fair
Applegate River, Little	Fair	Fair
Ashland Creek	Fair	Fair
Butte Creek, Little	Fair	Fair
Butte Creek, Big	Average	Fair
Cow Creek	Average	Fair
Deer Creek	Average	Fair
Elk Creek	Average	Fair
Emigrant Cr. (above Res.)	Average	Fair
Evans Creek	Average	Fair
Gold Hill Irrigation Dist.	Average	Average
Grants Pass Irrig. Dist.	Average	Average
Grave Creek	Fair	Fair
Illinois River, East Fork	Average	Fair
Illinois River, West Fork	Average	Fair
Neil Creek	Fair	Fair
Red Blanket Creek	Average	Fair
Rogue River	Average	Fair
Sucker Creek	Fair	Fair
Table Rock Irrig. Dist.	Average	Average
Thompson Creek	Fair	Fair
Wagner Creek	Fair	Fair
Williams Creek	Fair	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL b
Emigrant Gap	8.3	0.0 <sup>h</sup>	6.8	7.7
Fish Lake	7.8	5.1	8.0	6.1
Fourmile Lake	16.1	6.4	16.4	10.8
Howard Prairie	60.0	20.8	10.0	—
Hyatt Prairie	16.1	10.7	14.6	11.2

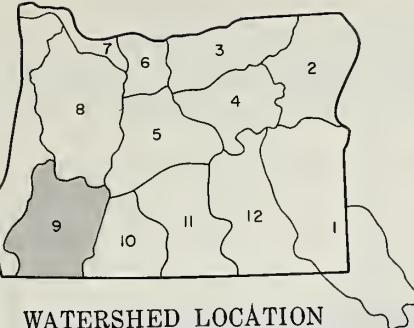
# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b THIS YEAR AS PERCENT OF NORMAL	
				FORECAST THIS YEAR	FORECAST PERIOD
7294	Applegate near Copper	93	April-Sept.	131	71
7420a	Clearwater above Trap Creek <sup>d</sup>	54	April-Sept.	73	74
8321	Fourmile Lake net inflow <sup>d</sup>	5.4	April-Sept.	7.4	73
8320	Hyatt Reservoir net inflow <sup>d</sup>	4.6	April-Sept.	6.2	74
712	Illinois River near Kerby <sup>d</sup>	165	April-Sept.	196	85
7230	Little Butte, North Fork below Fish Lake <sup>d</sup>	11.0	April-Sept.	16.9	65
722	Rogue above Prospect	300	April-Sept.	351	85
7263a	Rogue, South Fork near Prospect <sup>d</sup>	240	April-July	293	82
		70	April-Sept.	83	84
		59	April-July	71	83
7277	Rogue below South Fork	625	April-Sept.	749	83
		490	April-July	608	81
724	Rogue at Raygold near Central Point	845	April-Sept.	1004	84
		690	April-July	842	82
7292	Rogue at Grants Pass	830	April-Sept.	974	85
7419	Umpqua, North Fork below Lake Creek <sup>d</sup>	144	April-Sept.	186	77
728	Little Butte, South Fork near Lake Creek	34	April-July	42	81
	Note: Minimum flow will drop to 100 c.f.s. by June 3, 1960.				

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not Surveyed.

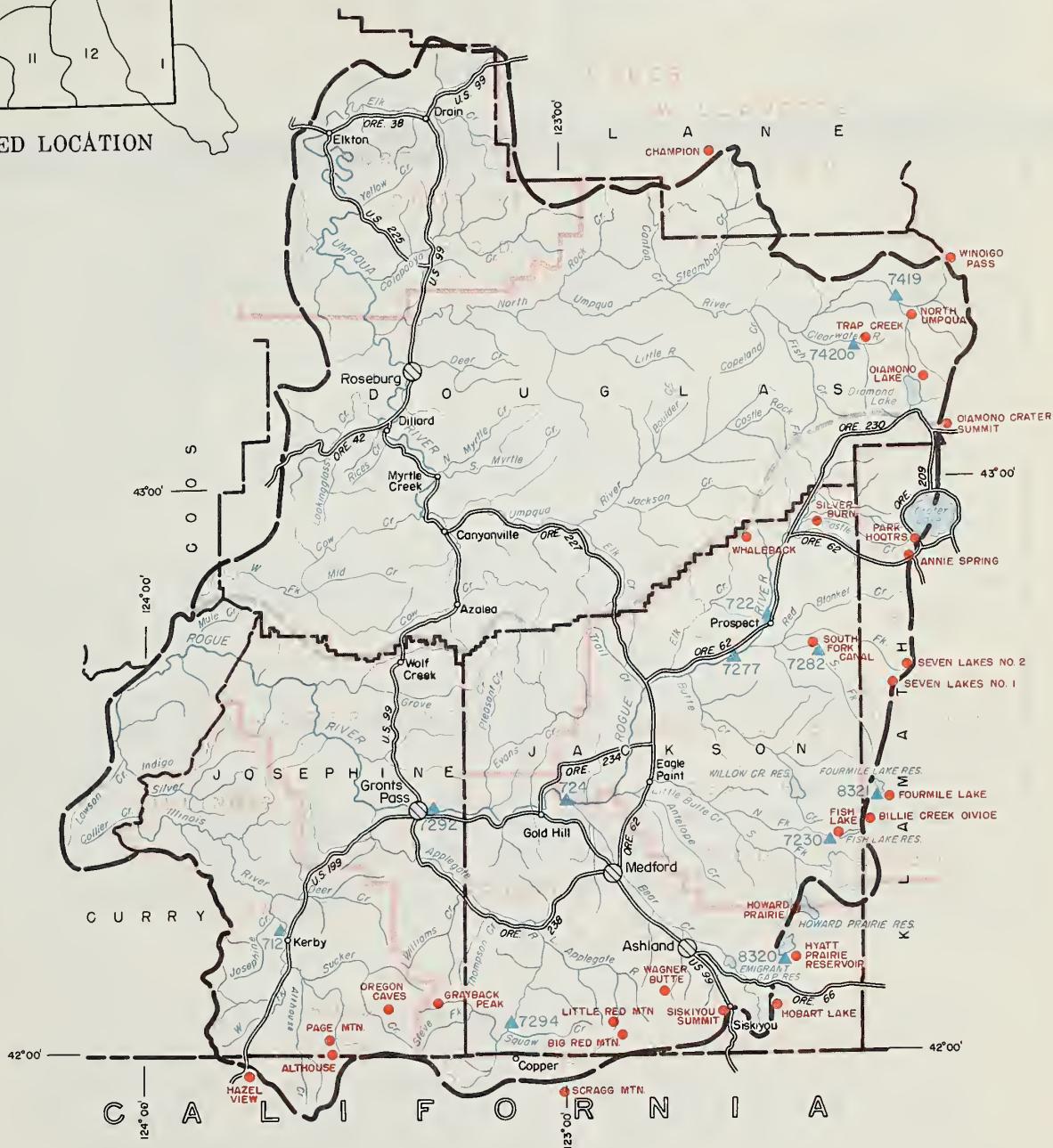
(h) Construction.

## ROGUE, UMPQUA WATERSHEDS



#### WATERSHED LOCATION

A horizontal scale bar with tick marks and numerical labels. The labels are 10, 0, 10, 20, and 30. The distance between 0 and 10 is divided into four equal segments by three tick marks. The distance between 10 and 20 is divided into four equal segments by three tick marks. The distance between 20 and 30 is divided into four equal segments by three tick marks.



#### LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course

# Rogue, Umpqua Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		YEARS IN NORMAL b
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR	
Althouse	4530	c					
Annie Spring	6018	4/28	90	43.5	20.7	45.4	15
Beaver Dam Creek	5100	g					
Big Red Mountain	6500	c					
Billie Creek Divide	5300	4/23	30	13.6	0.0	20.9	7
Champion	4500	c					
Cold Springs Camp	6100	c					
Deadwood Jct.	4600	c					
Diamond-Crater Summit	5800	4/26	72	32.3	14.0	--	0
Diamond Lake	5315	4/26	42	19.3	2.5	18.6	12
Fish Lake	4670	4/28	T	T	T	5.6	8
Fourmile Lake	6000	4/28	50	25.2	0.0	27.7	5
Grayback Peak	6000	c					
Hazel View	2500	c					
Hobart Lake	5010	c					
Howard Prairie	4560	g					
Hyatt Prairie Reservoir	4900	c					
Little Red Mountain	6500	c					
North Umpqua	4215	4/28	11	4.6	--	--	2
Page Mountain	4045	c					
Park Headquarters	6450	4/28	112	52.6	33.8	62.2	14
Rye Spring Spur	5000	4/28	T	T	--	--	0
Seven Lakes #1	6800	c					
Seven Lakes #2	6200	c					
Silver Burn	3720	4/26	8	2.8	0.0	--	4
Siskiyou Summit	4630	c					
South Fork Canal	3500	4/26	0	0.0	0.0	--	3
Trap Creek	3800	4/29	18	7.2	--	--	2
Wagner Butte	6900	c					
Whaleback	5140	c					
Windigo Pass	5800	4/26	87	39.7	19.1	52.5	9
New Umpqua Snow Surveys							
Eden Valley Summit	2390	5/2	0	0.0	--	--	0
Quartz Mountain #1	4500	4/29	10	4.8	--	--	0
Quartz Mountain #2	4000	4/29	0	0.0	--	--	0
Quartz Mountain #3	3700	4/29	0	0.0	--	--	0
Red Butte #1	4560	4/28	26	12.4	--	--	0
Red Butte #2	4000	4/28	0	0.0	--	--	0
Douglas County Water Resources Survey begins 6 new snow surveys this year on Umpqua watersheds.							

# WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

## GENERAL OUTLOOK

Below normal April precipitation and temperatures in the Klamath Basin have decreased streamflow forecasts and retarded agricultural operations. The water supply outlook is only "fair" on streams with no storage. Storage water will improve this outlook to "near average".

## SNOW COVER

Snow cover has increased at the very highest elevations and is now 82 percent of the 1943-57 average for May 1 and about 210 percent of last year at this time.

Cold temperatures have caused this increase in snow cover at Annie Spring, Park Headquarters, and Diamond-Crater Summit snow courses.

## SOIL MOISTURE

Watershed soils are mostly well "primed" but will dry out rapidly at lower elevations if below normal precipitation continues.

## RESERVOIR STORAGE

Stored water in Upper Klamath Lake is slightly better than average for this time of year with 504,800 acre feet, while Clear Lake and Gerber are 67 and 96 percent of average (1943-57) with 187,600 acre feet and 27,500 acre feet respectively.

## STREAMFLOW

Streamflow forecasts for the Klamath Basin vary from 48 percent of the 1943-57 average for the inflow to Gerber reservoir to 74 percent for the inflow to Upper Klamath Lake for the April-September period. Clear Lake inflow forecast is 25,000 acre feet or 50 percent of average. Sprague and Williamson forecasts are 155,000 acre feet and 340,000 acre feet for 52 and 70 percent respectively.

Inflow to Upper Klamath Lake\* was 62 percent of the 1943-57 average for April and has been 87 percent of average since October 1st, 1959.

\*Preliminary data furnished by California-Oregon Power Company, Medford, Oregon

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**WATER SUPPLY OUTLOOK** expressed as "Poor", "Fair"  
"Average" or "Excellent"

**RESERVOIR STORAGE (1,000 Ac. Ft.)**

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley	Average	Fair
Lost River (Clear Lake)	Average	Fair
Lost River (Gerber)	Average	Poor
Lost River (Willow Res.)	Fair	Poor
Sprague River	Fair	Poor
Upper Klamath Lake	Average	Fair
Williamson River	Average	Fair

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <sup>b</sup>
Clear Lake	440.2	187.6	276.4	279.0
Gerber	94.0	27.5	51.0	65.1
Upper Klamath Lake	584.0	504.8	496.9	497.7

**STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)**

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <sup>b</sup>	THIS YEAR AS PERCENT OF NORMAL
NO.	NAME				
823	Clear Lake Reservoir inflow <sup>g</sup>	25	April-Sept.	50	50
8215	Gerber Reservoir inflow <sup>g</sup>	12	April-Sept.	25	48
8421	Sprague near Chiloquin	155	April-Sept.	296	52
832	Upper Klamath Lake net inflow <sup>g</sup>	470	April-Sept.	632	74
		335	April-July	518	65
8419	Williamson below Sprague River	340	April-Sept.	486	70
		270	April-July	413	65

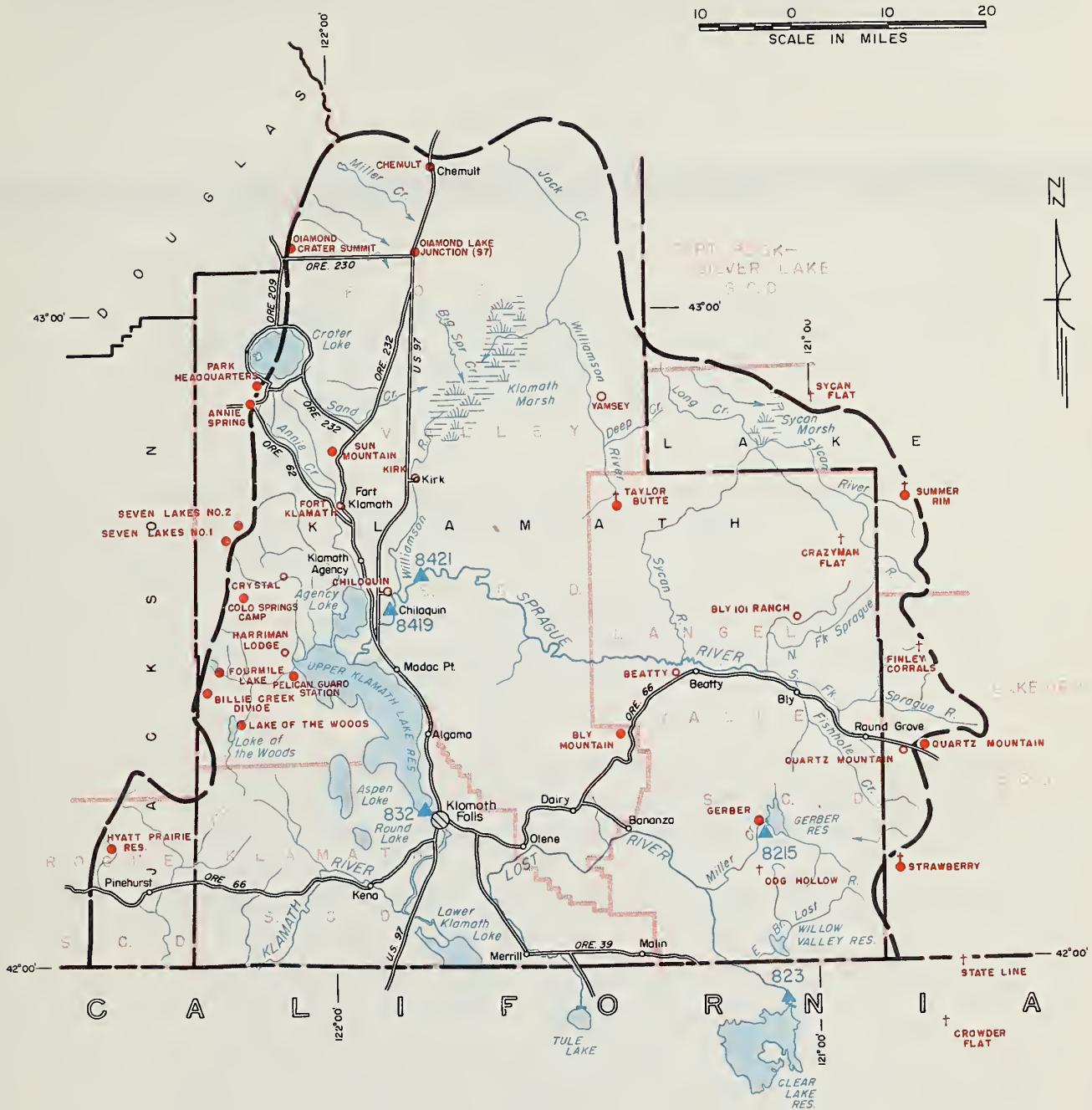
**SNOW**

SNOW COURSE	CURRENT INFORMATION				PAST RECORD		
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (inches)	WATER CONTENT (inches)	WATER CONTENT (inches)	YEARS IN NORMAL <sup>b</sup>
					LAST YEAR	NORMAL <sup>b</sup>	
Annie Spring	6018	4/28	90	43.5	20.7	45.4	15
Beatty (COPCO)	4300	c					
Billie Creek Divide	5300	4/23	30	13.6	0.0	20.9	7
Bly Mountain	5090	4/27	0	0.0	0.0	--	0
Bly 101 Ranch (COPCO)	4800	c					
Chemult	4760	4/27	0	0.0	--	0.5	8
Chiloquin (COPCO)	4187	c					
Cold Springs Camp	6100	c					
Crazyman Flat <sup>e</sup>	6100	c					
Crowder Flat <sup>e</sup>	5200	c					
Crystal (COPCO)	4200	c					
Diamond-Crater Summit	5800	4/26	72	32.3	14.0	--	0
Diamond Lake Junction (97)	4600	4/26	0	0.0	0.0	--	0
Dog Hollow <sup>e</sup>	4900	c					
Finley Corrals <sup>e</sup>	6000	c					
Fort Klamath (COPCO)	4150	c					
Gerber	4850	c					
Harriman Lodge (COPCO)	4200	c					
Hyatt Prairie Reservoir	4900	c					
Kirk (COPCO)	4533	c					
Lake of the Woods	4960	4/30	4	1.9 <sup>i</sup>	0.0	6.7	7
Park Headquarters	6450	4/28	112	52.6	33.8	62.2	14
Pelican Guard Station	4150	4/23	0	0.0	0.0	--	0
Quartz Mountain	5320	4/29	0	0.0	0.0	0.0	6
Quartz Mountain (COPCO)	5504	4/29	0	0.0	0.0	--	2
Seven Lakes No. 1	6800	c					
Seven Lakes No. 2	6200	c					
State Line <sup>e</sup>	5750	c					
Strawberry	5600	4/29	0	0.0	--	--	2
Summer Rim	7200	c					
Sun Mountain	5350	c					
Sycan Flat <sup>e</sup>	5500	c					
Taylor Butte <sup>e</sup>	5100	c					
Yamsey (COPCO)	4600	c					

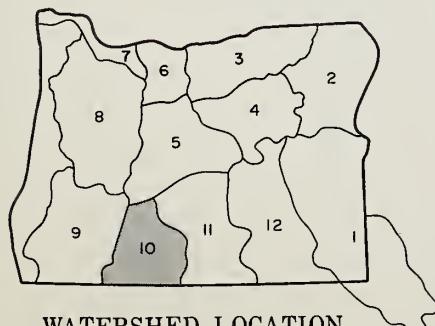
(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) From COPCO or USBR records of inflow. (h) Flashboards increase capacity to 513.0 (i) Water content partly estimated.

## KLAMATH WATERSHEDS

10 0 10 20  
SCALE IN MILES



## LEGEND



### WATERSHED LOCATION

Legend for the map:

- Watershed Boundary (Black line)
- Sub-watershed Boundary (Light gray line)
- Soil Conservation District Bdry (Pink line)
- County Boundary (Black line)
- Forecast Point (Blue triangle)
- Snow Course (Red circle)
- Aerial Snow Depth Gage (Red cross)
- COPCO Snow Station (Black circle)



# WATER SUPPLY OUTLOOK

## LAKE COUNTY, GOOSE LAKE WATERSHEDS

### OREGON

*as of*  
MAY 1, 1960

U.S.DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

#### GENERAL OUTLOOK

The 1960 irrigation water outlook for Lake County streams has decreased slightly and is now only "fair" in the early season and "poor" in the late season. Above normal rainfall during April was helpful only in contributing to stored water supplies and soil moisture.

#### SNOW COVER

Snow cover has disappeared from the watersheds of this area with none of the three snow courses measured showing any snow.

#### RESERVOIR STORAGE

Cottonwood and Drews Reservoirs show 38,000 acre feet of stored water compared to 50,400 acre feet at this time last year. This is only 63 percent of the average for 1943-57 for this date.

#### STREAMFLOW

Streamflow forecasts have dropped slightly on the Chewaucan and inflow to Drews reservoir. These streams are now forecast at 45,000 acre feet or 55 percent and 20,000 or 59 percent respectively for the April-June and April-July periods.

Forecasts for the Warner Valley streams remained the same as last month and are as follows:

Deep Creek above Adel	55,000 a.f.	77 percent average	
Honey Creek near Plush	12,300 a.f.	75 "	"
Twentymile near Adel	13,300 a.f.	68 "	"

Most of the small streams in the county will have "fair" early season flows but will taper off to "poor" for late season flows.

*Report prepared by:*

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# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.)

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River	Fair	Poor
Crooked Creek	Fair	Poor
Deep Creek	Fair	Fair
Dry Creek	Fair	Poor
East Side Goose Lake	Fair	Poor
Guano Lake	Fair	Poor
Honey Creek	Fair	Fair
Lakeview Water Users Assn.	Fair	Poor
Rock Creek	Fair	Poor
Silver-Buck Creeks	Fair	Poor
Summer Lake	Fair	Fair
Thomas Creek	Fair	Poor
Twentymile Creek	Fair	Fair
Warner Lakes	Fair	Poor

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL b
Cottonwood	4.1	4.6	2.7	3.6
Drew	62.5	33.4	47.7	57.1

# STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)

NO.	NAME	FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	NORMAL b	THIS YEAR AS PERCENT OF NORMAL
		NO.	NAME				
924	Chewaucan near Paisley			45	April-June	82	55
9127	Deep above Adel			55	April-June	71	77
814	Drew Reservoir net inflow			20	April-July	34	59
9114	Honey near Plush			12.3	April-June	16.3	75
916	Twentymile near Adel			13.3	April-June	20	68

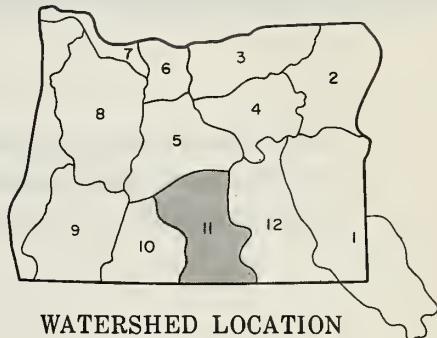
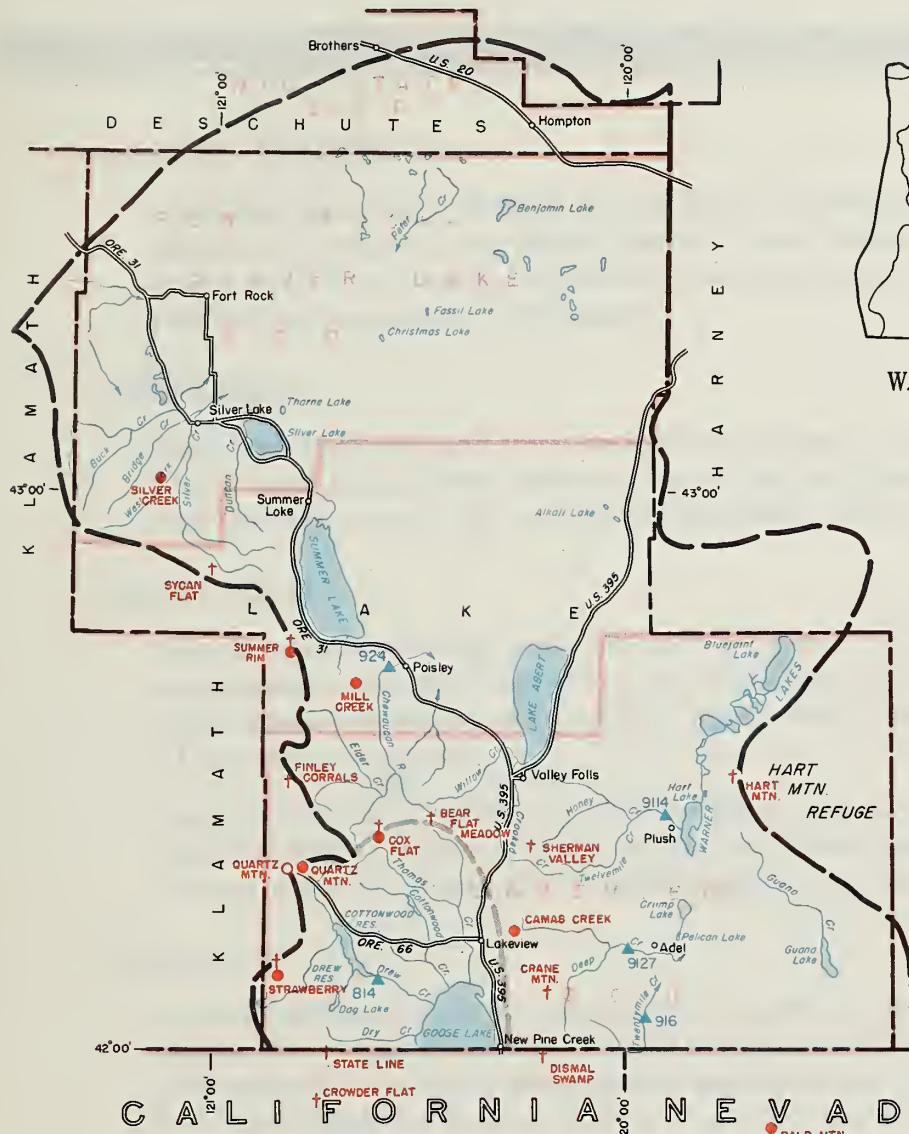
# SNOW

SNOW COURSE	CURRENT INFORMATION				PAST RECORD			
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (inches)	WATER CONTENT (inches)	WATER CONTENT (inches)		YEARS IN NORMAL b
						LAST YEAR	NORMAL b	
Bald Mountain (Nev.)	6720	c						
Bear Flat Meadow <sup>e</sup>	5900	c						
Camas Creek	5720	c						
Cox Flat <sup>e</sup>	5750	c						
Crane Mountain <sup>e</sup>	6020	c						
Crowder Plate <sup>e</sup>	5200	c						
Dismal Swamp <sup>e</sup> (Calif)	7000	c						
Finley Corrals <sup>e</sup>	6000	c						
Hart Mountain <sup>e</sup>	6350	c						
Mill Creek	6200	c						
Quartz Mountain (COPCO)	5504	4/29	0	0.0	0.0	--		2
Quartz Mountain	5320	4/29	0	0.0	0.0	0.0		6
Sherman Valley <sup>e</sup>	6600	c						
Silver Creek	4900	c						
State Line <sup>e</sup>	5750	c						
Strawberry	5600	4/29	0	0.0	--	--		2
Summer Rim	7200	c						
Sycan Flat <sup>e</sup>	5500	c						

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed.

# LAKE COUNTY, GOOSE LAKE WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION

22

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Sail Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station



# WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

*as of*  
MAY 1, 1960

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE, OREGON AGRICULTURAL EXPERIMENT STATION and OREGON STATE ENGINEER

## GENERAL OUTLOOK

The 1960 water supply outlook for the April-September period remains the same on all streams of the Harney Basin. Cooler than normal temperatures during April have retarded snow melt at higher elevations, while precipitation was below normal for the month.

## SNOW COVER

Snow cover has vanished from the lower elevations but has not melted as fast as usual from higher elevation courses such as Blue Mountain Springs. Snow on this course is 98 percent of its average (1943-57) for May 1.

## SOIL MOISTURE

Watershed soils are fairly well "primed" in most of the basin. Soil moisture measurements show that they vary from 84 percent of capacity at Stinking Water Summit to 52 percent at Willow Bald. Folly Farm Summit station was 81 percent of capacity.

The low figure of 52 percent for Willow Bald was measured before the snowpack had started to melt. There was still sufficient water in the snow to bring it up to capacity if most of it were absorbed by the soil-mantle.

## STREAMFLOW

Streamflow forecasts in the area remain the same as last month, with the Silvies River expected to flow 50,000 acre feet or 47 percent of the 1943-57 average for the April-September irrigation season. The Blitzen River and Trout Creek are forecast to flow 75 percent and 82 percent respectively.

Small streams are expected to recede much earlier than usual unless unusually heavy precipitation occurs during May or June.

Report prepared by:

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**WATER SUPPLY OUTLOOK** expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley	Fair	Fair
Cow Creek	Fair	Fair
Donner und Blitzen River	Fair	Fair
Mill-Coffeepot Creeks	Fair	Fair
Rattlesnake Creek	Fair	Fair
Silver Creek	Fair	Poor
Silvies River	Fair	Poor
Soldier-Prather Creek	Fair	Fair
Trout Creek	Fair	Fair
Whitehorse Creek	Fair	Fair

**RESERVOIR STORAGE (1,000 Ac. Ft.)**

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	NORMAL <sup>b</sup>

**STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.)**

NO.	NAME	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	NORMAL <sup>b</sup>	THIS YEAR AS PERCENT OF NORMAL
		NAME				
953	Donner und Blitzen near Frenchglen		50	April-Sept.	67	75
966	Silvies near Burns		50	April-Sept.	107	47
974	Trout near Denio		7.5	April-Sept.	9.2	82

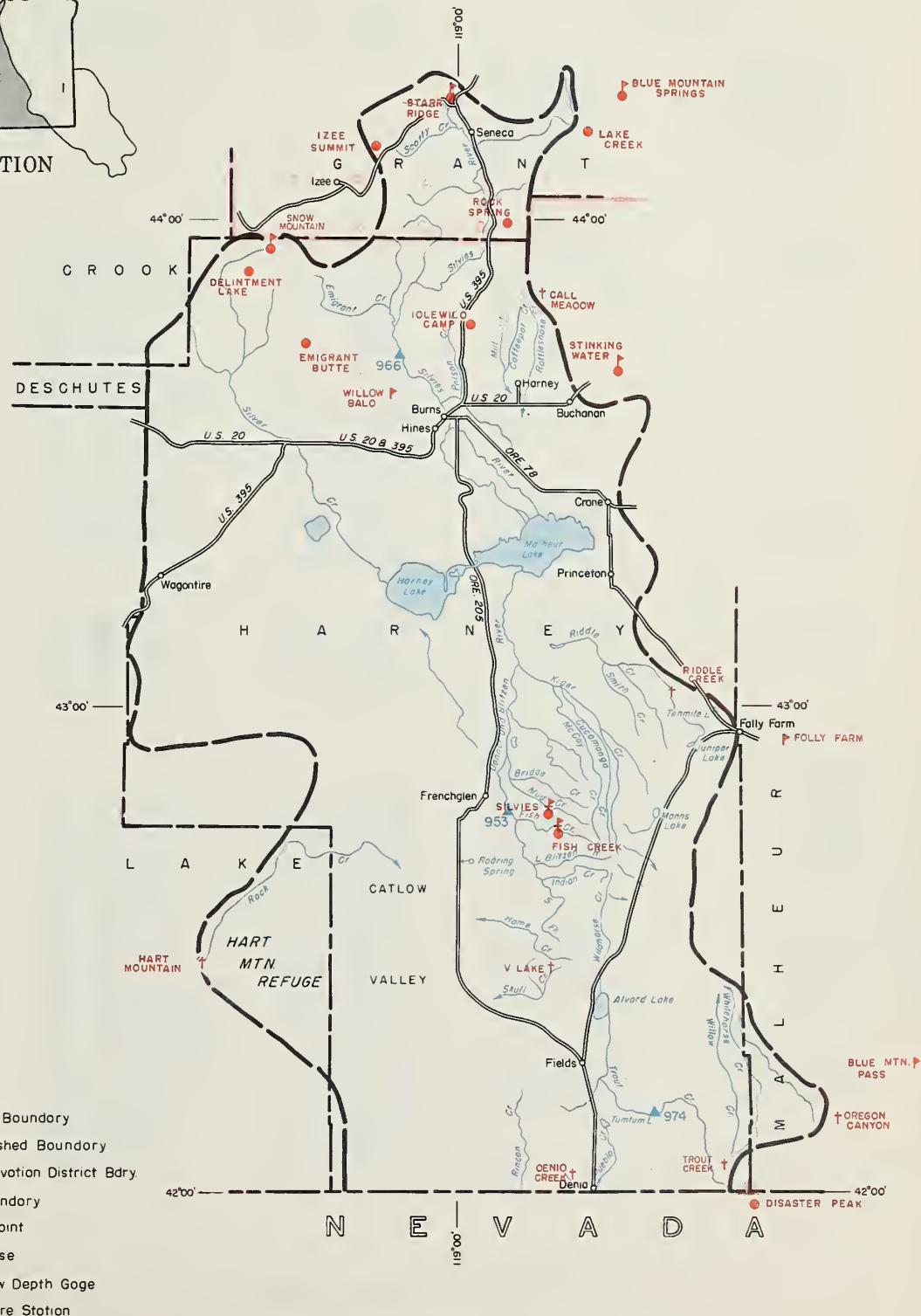
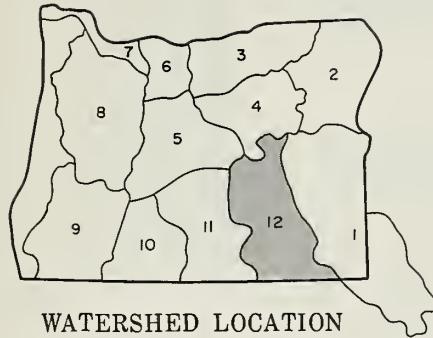
**SNOW**

SNOW COURSE	CURRENT INFORMATION				PAST RECORD		
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
						LAST YEAR	NORMAL <sup>b</sup>
Blue Mountain Springs	5900	4/27	12	5.7	1.0	5.8	5
Call Meadow <sup>e</sup>	5340	c					
Delintment Lake	5600	c					
Denio Creek <sup>e</sup>	6000	c					
Disaster Peak	6500	c					
Emigrant Butte	5000	c					
Fish Creek	7900	c					
Hart Mountain <sup>e</sup>	6350	c					
Idlewild Camp	5200	4/28	0	0.0	--	--	1
Izee Summit	5293	4/27	T	T	0.0	1.6	5
Lake Creek	5120	c					
Oregon Canyon <sup>e</sup>	7240	c					
Riddle Creek <sup>e</sup>	5300	c					
Rock Spring	5100	4/28	0	0.0	--	--	.1
Silvies	6900	c					
Snow Mountain	6300	c					
Starr Ridge	5156	4/27	0	0.0	0.0	0.9	5
Stinking Water	4800	g					
Trout Creek <sup>e</sup>	7800	c					
"V" Lake <sup>e</sup>	6600	c					

(a) Assuming normal meteorological conditions. (b) 1943-57, 15 year period. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage; water content estimated. (f) Report delayed. (g) Not surveyed.

# HARNEY BASIN WATERSHEDS

10 0 10 20 30  
SCALE IN MILES





NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.	NUMBER	NAME	LOCATION	ELEV.			
SEC.	TOP.	REC.		SEC.	TOP.	REC.		SEC.	TOP.	REC.		SEC.	TOP.	REC.		SEC.	TOP.	REC.		SEC.	TOP.	REC.		SEC.	TOP.	REC.				
<b>OWYHEE, MALHEUR WATERSHEDS (1)</b>																														
<i>Owyhee River Continued</i>																														
15H3	76 Creek	(Nev)	6	441	58E	7100		17F1	Shumway Ranch	(Ida)	29	23S	39E	4400		15H3	76 Creek	(Nev)	6	441	58E	7100		15H3	76 Creek	(Nev)	6	441	58E	7100
1606	Antelope Ridge	(Ida)	32	8S	1W	5900		16F3	Silver City	(Ida)	35	5S	3W	6000		1601	South Mountain No. 2	(Ida)	35	7S	5W	6340		1601	South Mountain No. 2	(Ida)	35	7S	5W	6340
18F5	Barren Valley		26	27S	38E	1200		1801	Silvies		35	22S	32E	6900		15H9	Taylor Canyon	(Nev)	35	39S	53E	6200		15H9	Taylor Canyon	(Nev)	35	39S	53E	5950
1609	*Battle Creek	(Ida)	10	11S	1E	5700		15H8	Triowear Ranch	(Nev)	9	39S	55E	5098		15H8	Triowear Ranch	(Nev)	9	39S	55E	5098		15H8	Triowear Ranch	(Nev)	9	39S	55E	5098
15H1	Bear Creek	(Nev)	31	6H	58E	7800		1604	*Triangle	(Ida)	25	7S	3W	5150		1604	Dooly Mountain	(Ida)	25	11S	40E	5400		1604	Dooly Mountain	(Ida)	25	11S	40E	5400
15H4	Big Bend	(Nev)	25	6H	58E	6700		1805	*Trout Creek	(Ida)	10	11S	38E	7800		1805	Eldorado Pass	(Ida)	20	11S	38E	6600		1805	Eldorado Pass	(Ida)	20	11S	38E	6600
17H2	Buckskin, Lower	(Nev)	25	12S	38E	6700		1807	*W Lake	(Ida)	31	35S	32E	6600		1807	Gold Center	(Ida)	21	9S	36E	5340		1807	Gold Center	(Ida)	21	9S	36E	5340
17H3	Buckskin, Upper	(Nev)	11	5H	58E	7200		18E9	Tipton		34	10S	35E	5100		18E9	Tipton		34	10S	35E	5100		18E9	Tipton		34	10S	35E	5100
16D0	*Bull Basin	(Ida)	29	12S	5W	5600		18H1	Barney Creek	(Ida)	16	11S	36E	5950		18E1	Barney Creek	(Ida)	16	11S	36E	5950		18E1	Barney Creek	(Ida)	16	11S	36E	5950
18H1	Desatre Peak	(Nev)	8	4H	51E	6500		18H2	Blue Mountain Summit	(Nev)	16	11S	36E	5950		18H2	Blue Mountain Summit	(Nev)	16	11S	36E	5950		18H2	Blue Mountain Summit	(Nev)	16	11S	36E	5950
18H2	Fish Creek	(Nev)	4	3S	33S	7900		18H3	*Gold Center	(Ida)	10	11S	38E	7800		18H3	Gold Center	(Ida)	10	11S	38E	7800		18H3	Gold Center	(Ida)	10	11S	38E	7800
15H2	Fox Creek	(Nev)	33	6H	58E	6800		18H4	Meacham	(Ida)	24	25	1S	5100		18H4	Meacham	(Ida)	24	25	1S	5100		18H4	Meacham	(Ida)	24	25	1S	5100
15H7	Fry Canyon	(Nev)	31	4H	51E	6700		18H5	Meacham	(Ida)	28	3S	51E	5850		18H5	Meacham	(Ida)	28	3S	51E	5850		18H5	Meacham	(Ida)	28	3S	51E	5850
15H5	Gold Creek	(Ida)	31	4H	51E	6600		18H6	Meacham	(Ida)	28	3S	51E	5850		18H6	Meacham	(Ida)	28	3S	51E	5850		18H6	Meacham	(Ida)	28	3S	51E	5850
17H4	Granite Peak	(Nev)	22	4H	39E	7800		18H7	Bonita	(Ida)	5	16S	40E	6600		18E1	Anthony Lake	(Ida)	18	7S	37E	7125		18E1	Anthony Lake	(Ida)	18	7S	37E	7125
16D5	*Hyde Pasture	(Ida)	38	2S	5W	5800		18H8	Bonita	(Ida)	5	16S	40E	6600		18E2	Bonita	(Ida)	33	8S	37E	5800		18E2	Bonita	(Ida)	33	8S	37E	5800
16H1	Jack Creek, Lower	(Nev)	18	4H	52E	6800		18H9	Bonita	(Ida)	10	11S	37E	5300		18E3	Dooley Mountain	(Ida)	32	11S	40E	5430		18E3	Dooley Mountain	(Ida)	32	11S	40E	5430
16H2	Jack Creek, Upper	(Nev)	9	4H	52E	7250		18H10	*Call Meadowe	(Ida)	29	20S	33E	5340		18E4	Eilerton Meadowe	(Ida)	18	8S	38E	5100		18E4	Eilerton Meadowe	(Ida)	18	8S	38E	5100
16H3	Jack Peak	(Nev)	28	4H	52E	8120		18H11	*Cottonwood-Indian	(Ida)	10	19S	39E	4320		18E5	Goodrich Lake	(Ida)	4	9S	38E	6775		18E5	Goodrich Lake	(Ida)	4	9S	38E	6775
17D4	*Louise Canyon	(Ida)	27	10S	5W	6400		18H12	*Crane Prairie	(Ida)	24	16S	31E	5375		18E6	Little Alps	(Ida)	10	7S	37E	6200		18E6	Little Alps	(Ida)	10	7S	37E	6200
17H3	Martin Creek	(Nev)	18	4H	50E	6700		18H13	*Crane Prairie	(Ida)	24	16S	31E	5375		18E7	Summit Springs	(Ida)	9	6S	37E	6000		18E7	Summit Springs	(Ida)	9	6S	37E	6000
16H3	Midas	(Nev)	18	3H	39E	6700		18H14	*Crane Prairie	(Ida)	3	6S	42E	5740		18E8	Taylor Green	(Ida)	3	6S	42E	5740		18E8	Taylor Green	(Ida)	3	6S	42E	5740
16D7	Mud Flat	(Ida)	34	9S	2W	5500		18H15	*Crane Prairie	(Ida)	3	6S	42E	5740		18E9	Tipton		13	16S	33E	5100		18E9	Tipton		13	16S	33E	5100
16D8	*Nickel Sheep Camp	(Ida)	23	10S	4W	5150		18H16	*Crane Prairie	(Ida)	23	18S	32E	5100		18E10	Summit Springs	(Ida)	16	4S	45E	5700		18E10	Summit Springs	(Ida)	16	4S	45E	5700
17D5	*Oregon Canyon	(Nev)	9	4H	40S	7200		18H17	*Crane Prairie	(Ida)	23	18S	32E	5100		18E11	Tipton		13	16S	33E	5100		18E11	Tipton		13	16S	33E	5100
17H6	*Quinn Ridge	(Nev)	9	4H	41E	6300		18H18	*Crane Prairie	(Ida)	23	18S	32E	5100		18E12	Tipton		13	16S	33E	5100		18E12	Tipton		13	16S	33E	5100
15H6	Rodeo Flat	(Nev)	36	4H	53E	6800		18H19	*Crane Prairie	(Ida)	23	18S	32E	5100		18E13	Tipton		13	16S	33E	5100		18E13	Tipton		13	16S	33E	5100



# The Following Organizations Cooperate in the Oregon Snow Survey Work

## STATE

Idaho Cooperative Snow Surveys  
Nevada Cooperative Snow Surveys  
Oregon Agricultural Experiment Station  
Oregon State Engineer and Corps of State Watermasters  
Oregon State Highway Engineers  
Soil Conservation Districts of Oregon

## FEDERAL

Department of Agriculture  
Cooperative Extension Service  
Forest Service  
Soil Conservation Service  
Department of Commerce  
Weather Bureau  
Department of the Interior  
Bonneville Power Administration  
Bureau of Land Management  
Bureau of Reclamation  
Fish and Wildlife Service  
Geological Survey  
Indian Service  
National Park Service  
Department of National Defense  
Corps of Army Engineers

## PUBLIC UTILITIES

California-Pacific Utilities Company  
Pacific Power and Light Company  
Portland General Electric Company  
The California Oregon Power Company

## MUNICIPALITIES

City of Baker  
City of La Grande  
City of The Dalles  
City of Walla Walla

## IRRIGATION DISTRICTS

Associated Ditch Companies  
Central Oregon Irrigation District  
Deschutes County Municipal Improvement District  
East Fork Irrigation District  
Grants Pass Irrigation District  
Jordan Valley Irrigation District  
Lakeview Water Users, Incorporated  
Medford Irrigation District  
North Board of Control - Owyhee Project  
North Unit Irrigation District  
Ochoco Irrigation District  
Rogue River Valley Irrigation District  
South Board of Control - Owyhee Project  
Talent Irrigation District  
Vale-Oregon Irrigation District  
Warmsprings Irrigation District

## PRIVATE ORGANIZATIONS

Amalgamated Sugar Company  
The Crag Rats, Hood River, Oregon

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with the Snow Survey"*